No. 375

RICHARD L. A

# SPECIFICATIONS

FOR

STATE IMPROVEMENT NO. 50-1

ATHENS HIGH AND INDUSTRIAL SCHOOL

ATHENS, GEORGIA

FOR ATHENS CITY BOARD OF EDUCATION

FRED AYERS - SUPERINTENDENT

MATHIS CONST. CO.

AECK ASSOCIATES
ARCHITECTS
One Forty Peachtree
Atlanta, Georgia

JOB NO. 208

Set #14

Date: 15 May 1954

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## SECTION A

### INVITATION TO BID

1. Sealed proposals from General Contractors will be received by the State School Building Authority, Owner, at Room 311, State Capitol, Atlanta, Georgia, until Eastern Standard Time on for the construction of building as follows: ATHENS HIGH AND INDUSTRIAL BUILDING (C), located at Athens, Georgia. At the time and place noted above, the proposals for each project will be publicly opened and read. No extension of the bidding period will be made.

2. Bidding documents may be obtained at the office of the Architect, Aeck Associates, Architects, 140 Peachtree Street, Atlanta, Georgia. Applications for documents together with deposit of $50.00 per set per improvement should be filed promptly with the Architect. Bidding material will be forwarded, shipping charges collect, as soon as possible. The full amount of deposit for one set will be refunded to each general contractor who submits a bona fide bid upon return of such set in good condition within 30 days after date of opening of bids. All other deposits will be refunded with deductions approximating cost of reproduction of documents upon return of same in good condition within 30 days after date of opening of bids.

3. Contract, if awarded, will be on a lump sum basis. No bid may be withdrawn for a period of 35 days after time has been called on the date of opening. Bids must be accompanied by a bid bond in an amount not less than 5% of the base bid. Both a performance and a payment bond will be required in an amount equal to 100% of the contract price.

4. The Owner reserves the right to reject any or all bids and to waive technicalities and informalities.

STATE SCHOOL BUILDING AUTHORITY

By Fred Hand, Chairman

# SECTION B

Date: ____________________

State School Building Authority
Room 311, State Capitol
Atlanta, Georgia

Re: IMPROVEMENT NO. 50-1
ATHENS HIGH AND INDUSTRIAL SCHOOL (C)

Gentlemen:

B-01. Having carefully examined the Specifications entitled ATHENS HIGH AND INDUSTRIAL SCHOOL (C), IMPROVEMENT NO. 50-1, and the drawings similarly entitled, numbered A-1 to A-4, inclusive, D-1 to D-7, inclusive, and S-1 to S-8, inclusive, H-1 to H-3, inclusive, P-1 to P-4, inclusive, and E-1 to E-4, inclusive, all dated ______________________________, and Addendum (s) No. (s) 1 (Bound with Specifications) ______________________________, as well as the premises and conditions affecting the work, the undersigned proposes to furnish all services, labor and materials called for by them for the entire work, in accordance with said documents, for the sum of

____________________________________________________________

____________________________________________________ Dollars

($______________________________) which sum is hereinafter called the "Base Bid".

B-02. The undersigned further purposes that should any of the following alternates be accepted and be incorporated in the contract, the Base Bid will be altered in each case as follows:

Alternate No. 1 - Omission of Public Address System, deduct the sum of
______________________________________ Dollars
($______________________).

Alternate No. 2 - Substitution of Asphalt Tile Grades, deduct the sum of
______________________________________ Dollars
($______________________).

Alternate No. 3 - Substitution of Clock System, deduct the sum of
______________________________________ Dollars
($______________________).

Alternate No. 4 - Omission of Metal Lockers, deduct the sum of

________________________________________ Dollars

($____________________).

Alternate No. 5 - Omission of Sky Domes, deduct the sum of

________________________________________ Dollars

($____________________).

Alternate No. 6 - Omission of Quarry Tile, deduct the sum of

________________________________________ Dollars

($____________________).

Alternate No. 7 - Omission of Structural Glazed Tile, deduct the sum of

________________________________________ Dollars

($____________________).

B-03. For and in consideration of the sum of $1.00, the receipt of which is hereby acknowledged, the undersigned agrees that this proposal may not be revoked or withdrawn after the time set for the opening of bids, but shall remain open for acceptance for a period of thirty-five (35) days following such time.

B-04. In case he be notified in writing by mail, telegraph, or delivery of the acceptance of this proposal within thirty-five (35) days after the time set for the opening of bids, the undersigned agrees to execute within ten (10) days a contract (A.I.A. Standard Form of Agreement between Contractor and Owner when a stipulated sum forms the basis of payment) for the work for the above stated compensation and at the same time to furnish and deliver to the Owner a Performance Bond and a Payment Bond (A.I.A. Form 107) both in an amount equal to 100% of the contract sum and with alterations as provided in Article E-28 of the General Conditions.

B-05. The undersigned agrees to commence actual physical work on the site with an adequate force and equipment within ten days of a date to be specified in a written order of the Owner and to complete fully all work in __________ consecutive calendar days from and including said date.

B-06. Inclosed herewith is a bid bond* in the amount of __________

______________________________________________________ Dollars

($______________________) (being not less than 5% of the Base Bid). The undersigned agrees that the above stated amount is the proper measure of liquidated damages which the Owner will sustain by the failure of the undersigned to execute the contract and to furnish the Performance and Payment Bond in case this proposal is accepted, and further agrees to the following:

*Certified checks not acceptable.

B-07. If this proposal is accepted within thirty-five (35) days after the date set for the opening of bids and the undersigned fails to execute the contract within ten (10) days after written notice of such acceptance or if he fails to furnish both Performance and Payment Bond (A.I.A. Form 107), the obligation of the bid bond will remain in full force and effect and the money payable thereon shall be paid into the funds of the Owner as liquidated damages for such failure; otherwise obligation of the bond will be null and void.

B-08. The bidder submits the following statement of bidder's qualifications for consideration of the Owner.

STATEMENT OF BIDDER'S QUALIFICATIONS

To accompany bids submitted for Construction of Athens High and Industrial School Building (C), Athens, Georgia.

Name of Bidder ____________________

Business Address ____________________

When Organized ____________________

Where Incorporated ____________________

How many years have you been engaged in the contracting business under the present firm name? ____________________

Financial Statement ____________________

Credit Available for this Contract $ ____________________

Contracts now in hand, Gross Amount $ ____________________

Plan of Organization ____________________

____________________

Have you ever refused to sign a contract at your original bid?

____________________

Have you ever defaulted on a contract? ____________________

Remarks: ____________________

____________________

(The above statements must be subscribed and sworn to before a Notary Public.)

Date ____________________

Firm Name ____________________

By ____________________

Title ____________________

____________________
(Notary Public)

Respectfully submitted,

Name ______________________________

Address ____________________________

____________________________

By ________________________________

Title ______________________________

The full names and addresses of persons and firms interested in the foregoing bids as principals are as follows:

______________________________________________

______________________________________________

______________________________________________

The legal name of the bidder is:

______________________________________________

***

# SECTION B

Date: ______________________

State School Building Authority
Room 311, State Capitol
Atlanta, Georgia

Re: IMPROVEMENT NO. 50-1
ATHENS HIGH AND INDUSTRIAL SCHOOL (C)

Gentlemen:

B-01. Having carefully examined the Specifications entitled ATHENS HIGH AND INDUSTRIAL SCHOOL (C), IMPROVEMENT NO. 50-1, and the drawings similarly entitled, numbered A-1 to A-4, inclusive, D-1 to D-7, inclusive, and S-1 to S-8, inclusive, H-1 to H-3, inclusive, P-1 to P-4, inclusive, and E-1 to E-4, inclusive, all dated ______________________, and Addendum (s) No. (s) 1 (Bound with Specifications) ______________________, as well as the premises and conditions affecting the work, the undersigned proposes to furnish all services, labor and materials called for by them for the entire work, in accordance with said documents, for the sum of

______________________________________________

______________________________________________ Dollars

($______________________) which sum is hereinafter called the "Base Bid".

B-02. The undersigned further purposes that should any of the following alternates be accepted and be incorporated in the contract, the Base Bid will be altered in each case as follows:

Alternate No. 1 - Omission of Public Address System, deduct the sum of ______________________ Dollars ($______________________).

Alternate No. 2 - Substitution of Asphalt Tile Grades, deduct the sum of ______________________ Dollars ($______________________).

Alternate No. 3 - Substitution of Clock System, deduct the sum of ______________________ Dollars ($______________________).

Alternate No. 4 - Omission of Metal Lockers, deduct the sum of

______________________________ Dollars

($________________).

Alternate No. 5 - Omission of Sky Domes, deduct the sum of

______________________________ Dollars

($________________).

Alternate No. 6 - Omission of Quarry Tile, deduct the sum of

______________________________ Dollars

($________________).

Alternate No. 7 - Omission of Structural Glazed Tile, deduct the sum of

______________________________ Dollars

($________________).

B-03. For and in consideration of the sum of $1.00, the receipt of which is hereby acknowledged, the undersigned agrees that this proposal may not be revoked or withdrawn after the time set for the opening of bids, but shall remain open for acceptance for a period of thirty-five (35) days following such time.

B-04. In case he be notified in writing by mail, telegraph, or delivery of the acceptance of this proposal within thirty-five (35) days after the time set for the opening of bids, the undersigned agrees to execute within ten (10) days a contract (A.I.A. Standard Form of Agreement between Contractor and Owner when a stipulated sum forms the basis of payment) for the work for the above stated compensation and at the same time to furnish and deliver to the Owner a Performance Bond and a Payment Bond (A.I.A. Form 107) both in an amount equal to 100% of the contract sum and with alterations as provided in Article E-28 of the General Conditions.

B-05. The undersigned agrees to commence actual physical work on the site with an adequate force and equipment within ten days of a date to be specified in a written order of the Owner and to complete fully all work in __________ consecutive calendar days from and including said date.

B-06. Inclosed herewith is a bid bond* in the amount of __________

__________________________________________________ Dollars

($______________________) (being not less than 5% of the Base Bid). The undersigned agrees that the above stated amount is the proper measure of liquidated damages which the Owner will sustain by the failure of the undersigned to execute the contract and to furnish the Performance and Payment Bond in case this proposal is accepted, and further agrees to the following:

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B-07. If this proposal is accepted within thirty-five (35) days after the date set for the opening of bids and the undersigned fails to execute the contract within ten (10) days after written notice of such acceptance or if he fails to furnish both Performance and Payment Bond (A.I.A. Form 107), the obligation of the bid bond will remain in full force and effect and the money payable thereon shall be paid into the funds of the Owner as liquidated damages for such failure; otherwise obligation of the bond will be null and void.

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## STATEMENT OF BIDDER'S QUALIFICATIONS

To accompany bids submitted for Construction of Athens High and Industrial School Building (C), Athens, Georgia.

Name of Bidder

Business Address

When Organized

Where Incorporated

How many years have you been engaged in the contracting business under the present firm name?

Financial Statement

Credit Available for this Contract $

Contracts now in hand, Gross Amount $

Plan of Organization

Have you ever refused to sign a contract at your original bid?

Have you ever defaulted on a contract?

Remarks:

(The above statements must be subscribed and sworn to before a Notary Public.)

Date

Firm Name

By

Title

(Notary Public)

Respectfully submitted,

Name ______________________________

Address ____________________________

____________________________

By ______________________________

Title ______________________________

The full names and addresses of persons and firms interested in the foregoing bids as principals are as follows:

______________________________________________

______________________________________________

______________________________________________

The legal name of the bidder is:

______________________________________________

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Date: ______________________

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Financial Statement ________________________________

Credit Available for this Contract $ ________________________________

Contracts now in hand, Gross Amount $ ________________________________

Plan of Organization ________________________________

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Have you ever refused to sign a contract at your original bid?

________________________________

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Remarks: ________________________________

(The above statements must be subscribed and sworn to before a Notary Public.)

Date ________________________________

Firm Name ________________________________

By ________________________________

Title ________________________________

________________________________
(Notary Public)

Respectfully submitted,

Name ________________________

Address ________________________

________________________

By ________________________

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________________________

________________________

________________________

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Name of Bidder ______________________________

Business Address ______________________________

When Organized ______________________________

Where Incorporated ______________________________

How many years have you been engaged in the contracting business under the present firm name? ______________________________

Financial Statement ______________________________

Credit Available for this Contract $ ______________________________

Contracts now in hand, Gross Amount $ ______________________________

Plan of Organization ______________________________

______________________________

Have you ever refused to sign a contract at your original bid?

______________________________

Have you ever defaulted on a contract? ______________________________

Remarks: ______________________________

(The above statements must be subscribed and sworn to before a Notary Public.)

Date ______________________________

Firm Name ______________________________

By ______________________________

Title ______________________________

______________________________
(Notary Public)

Respectfully submitted,

Name ______________________________________

Address ___________________________________

___________________________________

By ________________________________________

Title _____________________________________

The full names and addresses of persons and firms interested in the foregoing bids as principals are as follows:

________________________________________________________

________________________________________________________

________________________________________________________

The legal name of the bidder is:

________________________________________________________

***

# SECTION C

## INSTRUCTIONS TO BIDDERS

**C–01. Basis of Contract:** See Invitation to Bid and Proposal Form.

**C–02. Bid Security:** See Invitation to Bid and Proposal Form.

**C–03. Interpretations:** No oral interpretation will be made to bidders as to the meaning of the drawings and specifications. Requests for interpretation of drawings and specifications must be made in writing to the architect not later than five (5) days prior to date set for receipt of the proposals, and failure on the part of the successful bidder to do so shall not relieve him as contractor of the obligations to execute such work in accordance with a later interpretation by the architect. All interpretations made to bidders will be issued in the form of addenda to the plans and specifications and will be sent to all bidders. Such addenda are to be covered in the proposals, and in closing the contract they will become a part thereof.

**C–04. Proposals:**

(a) Proposals will be opened and read as stated in the Invitation to Bid.

(b) All bids must be submitted in duplicate upon the same form as the blanks shown in Section B, and both copies must be signed. All blanks on the proposal form must be filled in. Three loose copies are furnished bidders for their use. Numbers shall be written in English words and in Arabic numerals, and the completed form shall be without interlineations, alterations or erasures. Failure to submit a bid in the form requested or the inclusion of any alternates, conditions, limitations or provisions not called for will render the bid irregular and shall be considered sufficient cause for rejection of bid. Failure to complete entries in all blanks in the proposal form shall be considered sufficient cause for rejection of a proposal.

(c) Bids are to be addressed to the Building Authority, Atlanta, Georgia, at the address and room number shown in the Advertisement for Bids, and must be inclosed in an opaque, sealed envelope marked with the name and number of the improvement and identified with the words "Proposal for Construction." Bids are to reach the address designated in the Advertisement for Bids **not later** than the hour and date named in the Advertisement for Bids. After that time no bids may be received or withdrawn.

(d) All alternates are deductive and must be bid on. See Paragraph E–21.

(e) Proposals together with the full bid security accompanying same may be withdrawn by bidders prior to the time set for official opening. After time has been called, no bid may be withdrawn for a period of thirty-five days after the TIME and DATE of opening. Negligence or error on the part of any bidder in preparing his bid confers no right of withdrawal or modification of his bid after time has been called. Sureties and principals are advised that the Authority cannot give consideration to any plea of error in the preparation of a proposal.

**C–05. Examination of Site:** The bidder's attention is directed to Paragraph E–17 and Paragraph E–05 (c).

**C–06. Contract Form and Bonds:** The bidder's attention is directed to Paragraph B–04.

**C–07. Award:** The Owner reserves the right to reject any or all bids and to waive any technicalities and informalities. (See also Paragraph C–01.)

# THE GENERAL CONDITIONS OF THE CONTRACT FOR THE CONSTRUCTION OF BUILDINGS

## Standard Form of The American Institute of Architects

THE STANDARD FORM OF GENERAL CONDITIONS, SIXTH EDITION, HAS RECEIVED THE APPROVAL OF THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA; THE CONTRACTING PLASTERERS' INTERNATIONAL ASSOCIATION; THE NATIONAL BUILDING GRANITE QUARRIES ASSOCIATION, INC.; THE NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION; THE PAINTING AND DECORATING CONTRACTORS OF AMERICA, AND THE PRODUCERS' COUNCIL, INC.

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INDEX TO THE ARTICLES OF THE GENERAL CONDITIONS

1. Definitions.
2. Execution, Correlation and Intent of Documents.
3. Detail Drawings and Instructions.
4. Copies Furnished.
5. Shop Drawings.
6. Drawings and Specifications on the Work.
7. Ownership of Drawings and Models.
8. Samples.
9. Materials, Appliances, Employees.
10. Royalties and Patents.
11. Surveys, Permits and Regulations.
12. Protection of Work and Property.
13. Inspection of Work.
14. Superintendence: Supervision.
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16. Claims for Extra Cost.
17. Deductions for Uncorrected Work.
18. Delays and Extension of Time.
19. Correction of Work Before Final Payment.
20. Correction of Work After Final Payment.
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37. Relations of Contractor and Subcontractor.
38. Architect's Status.
39. Architect's Decisions.
40. Arbitration.
41. Cash Allowances.
42. Use of Premises.
43. Cutting, Patching and Digging.
44. Cleaning Up.

### Art. 1 Definitions.

(a) The Contract Documents consist of the Agreement, the General Conditions of the Contract, the Drawings and Specifications, including all modifications thereof incorporated in the documents before their execution. These form the Contract.

(b) The Owner, the Contractor and the Architect are those mentioned as such in the Agreement. They are treated throughout the Contract Documents as if each were of the singular number and masculine gender.

(c) The term Subcontractor, as employed herein, includes only those having a direct contract with the Contractor and it includes one who furnishes material worked to a special design according to the plans or specifications of this work, but does not include one who merely furnishes material not so worked.

(d) Written notice shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered mail to the last business address known to him who gives the notice.

(e) The term "work" of the Contractor or Subcontractor includes labor or materials or both.

(f) All time limits stated in the Contract Documents are of the essence of the Contract.

(g) The law of the place of building shall govern the construction of this Contract.

**Art. 2. Execution, Correlation and Intent of Documents.**—The Contract Documents shall be signed in duplicate by the Owner and the Contractor. In case the Owner and the Contractor fail to sign the General Conditions, Drawings or Specifications, the Architect shall identify them.

The Contract Documents are complementary, and what is called for by any one shall be as binding as if called for by all. The intention of the documents is to include all labor and materials, equipment and transportation necessary for the proper execution of the work. It is not intended, however, that materials or work not covered by or properly inferable from any heading, branch, class or trade of the specifications shall be supplied unless distinctly so noted on the drawings. Materials or work described in words which so applied have a well-known technical or trade meaning shall be held to refer to such recognized standards.

**Art. 3. Detail Drawings and Instructions.**—The Architect shall furnish with reasonable promptness, additional instructions, by means of drawings or otherwise, necessary for the proper execution of the work. All such drawings and instructions shall be consistent with the Contract Documents, true developments thereof, and reasonably inferable therefrom.

The work shall be executed in conformity therewith and the Contractor shall do no work without proper drawings and instructions.

The Contractor and the Architect, if either so requests, shall jointly prepare a schedule, subject to change from time to time in accordance with the progress of the work, fixing the dates at which the various detail drawings will be required, and the Architect shall furnish them in accordance with that schedule. Under like conditions, a schedule shall be prepared, fixing the dates for the submission of shop drawings, for the beginning of manufacture and installation of materials and for the completion of the various parts of the work.

**Art. 4 Copies Furnished.**—Unless otherwise provided in the Contract Documents the Architect will furnish to the Contractor, free of charge, all copies of drawings and specifications reasonably necessary for the execution of the work.

**Art. 5. Shop Drawings.**—The Contractor shall submit with such promptness as to cause no delay in his own work or in that of any other Contractor, two copies of all shop or setting drawings and schedules required for the work of the various trades, and the Architect shall pass upon them with reasonable promptness, making desired corrections, including all necessary corrections relating to artistic effect. The Contractor shall make any corrections required by the Architect, file with him two corrected copies and furnish such other copies as may be needed. The Architect's approval of such drawings or schedules shall not relieve the Contractor from responsibility for deviations from drawings or specifications, unless he has in writing called the Architect's attention to such deviations at the time of submission, nor shall it relieve him from responsibility for errors of any sort in shop drawings or schedules.

**Art. 6. Drawings and Specifications on the Work.**—The Contractor shall keep one copy of all drawings and specifications on the work, in good order, available to the Architect and to his representatives.

**Art. 7. Ownership of Drawings and Models.**—All drawings, specifications and copies thereof furnished by the Architect are his property. They are not to be used on other work and, with the exception of the signed Contract set, are to be returned to him on request, at the completion of the work. All models are the property of the Owner.

**Art. 8. Samples.**—The Contractor shall furnish for approval all samples as directed. The work shall be in accordance with approved samples.

**Art. 9. Materials, Appliances, Employees.**—Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation and other facilities necessary for the execution and completion of the work.

Unless otherwise specified, all materials shall be new and both workmanship and materials shall be of good quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

The Contractor shall at all times enforce strict discipline and good order among his employees, and shall not employ on the work any unfit person or anyone not skilled in the work assigned to him.

**Art. 10 Royalties and Patents.**—The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Owner harmless from loss on account thereof, except that the Owner shall be responsible for all such loss when a particular process or the product of a particular manufacturer or manufacturers is specified, but

if the Contractor has information that the process or article specified is an infringement of a patent he shall be responsible for such loss unless he promptly gives such information to the Architect or Owner.

**Art. 11. Surveys, Permits and Regulations.**—The Owner shall furnish all surveys unless otherwise specified. Permits and licenses of a temporary nature necessary for the prosecution of the work shall be secured and paid for by the Contractor. Permits, licenses and easements for permanent structures or permanent changes in existing facilities shall be secured and paid for by the Owner, unless otherwise specified.

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. If the Contractor observes that the drawings and specifications are at variance therewith, he shall promptly notify the Architect in writing, and any necessary changes shall be adjusted as provided in the Contract for changes in the work. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Architect, he shall bear all costs arising therefrom.

**Art. 12 Protection of Work and Property.**—The Contractor shall continuously maintain adequate protection of all his work from damage and shall protect the Owner's property from injury or loss arising in connection with this Contract. He shall make good any such damage, injury or loss, except such as may be directly due to errors in the Contract Documents or caused by agents or employees of the Owner. He shall adequately protect adjacent property as provided by law and the Contract Documents.

The Contractor shall take all necessary precautions for the safety of employees on the work, and shall comply with all applicable provisions of Federal, State, and Municipal safety laws and building codes to prevent accidents or injury to persons on, about or adjacent to the premises where the work is being performed. He shall erect and properly maintain at all times, as required by the conditions and progress of the work, all necessary safeguards for the protection of workmen and the public and shall post danger signs warning against the hazards created by such features of construction as protruding nails, hod hoists, well holes, elevator hatchways, scaffolding, window openings, stairways and falling materials; and he shall designate a responsible member of his organization on the work, whose duty shall be the prevention of accidents. The name and position of the person so designated shall be reported to the Architect by the Contractor.

In an emergency affecting the safety of life or of the work or of adjoining property, the Contractor, without special instruction or authorization from the Architect or Owner, is hereby permitted to act, at his discretion, to prevent such threatened loss or injury, and he shall so act, without appeal, if so instructed or authorized. Any compensation, claimed by the Contractor on account of emergency work, shall be determined by agreement or Arbitration.

**Art. 13. Inspection of Work.**—The Architect and his representatives shall at all times have access to the work wherever it is in preparation or progress and the Contractor shall provide proper facilities for such access and for inspection.

If the specifications, the Architect's instructions, laws, ordinances or any public authority require any work to be specially tested or approved, the Contractor shall give the Architect timely notice of its readiness for inspection, and if the inspection is by another authority than the Architect, of the date fixed for such inspection. Inspections by the Architect shall be promptly made, and where practicable at the source of supply. If any work should be covered up without approval or consent of the Architect, it must, if required by the Architect, be uncovered for examination at the Contractor's expense.

Re-examination of questioned work may be ordered by the Architect and if so ordered the work must be uncovered by the Contractor. If such work be found in accordance with the Contract Documents the Owner shall pay the cost of re-examination and replacement. If such work be found not in accordance with the Contract Documents the Contractor shall pay such cost, unless he shall show that the defect in the work was caused by another Contractor, and in that event the Owner shall pay such cost.

**Art. 14. Superintendence: Supervision.**—The Contractor shall keep on his work, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Architect. The superintendent shall not be changed except with the consent of the Architect, unless the superintendent proves to be unsatisfactory to the Contractor and ceases to be in his employ. The

superintendent shall represent the Contractor in his absence and all directions given to him shall be as binding as if given to the Contractor. Important directions shall be confirmed in writing to the Contractor. Other directions shall be so confirmed on written request in each case.

The Contractor shall give efficient supervision to the work, using his best skill and attention. He shall carefully study and compare all drawings, specifications and other instructions and shall at once report to the Architect any error, inconsistency or omission which he may discover, but he shall not be held responsible for their existence or discovery.

**Art. 15. Changes in the Work.**—The Owner, without invalidating the Contract, may order extra work or make changes by altering, adding to or deducting from the work, the Contract Sum being adjusted accordingly. All such work shall be executed under the conditions of the original contract except that any claim for extension of time caused thereby shall be adjusted at the time of ordering such change.

In giving instructions, the Architect shall have authority to make minor changes in the work, not involving extra cost, and not inconsistent with the purposes of the building, but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order from the Owner signed or countersigned by the Architect, or a written order from the Architect stating that the Owner has authorized the extra work or change, and no claim for an addition to the contract sum shall be valid unless so ordered.

The value of any such extra work or change shall be determined in one or more of the following ways :

(a) By estimate and acceptance in a lump sum.
(b) By unit prices named in the contract or subsequently agreed upon.
(c) By cost and percentage or by cost and a fixed fee.

If none of the above methods is agreed upon, the Contractor, provided he receives an order as above, shall proceed with the work. In such case and also under case (c), he shall keep and present in such form as the Architect may direct, a correct account of the cost, together with vouchers. In any case, the Architect shall certify to the amount, including reasonable allowance for overhead and profit, due to the Contractor. Pending final determination of value, payments on account of changes shall be made on the Architect's certificate.

Should conditions encountered below the surface of the ground be at variance with the conditions indicated by the drawings and specifications the contract sum shall be equitably adjusted upon claim by either party made within a reasonable time after the first observance of the conditions.

**Art. 16. Claims for Extra Cost.**—If the Contractor claims that any instructions by drawings or otherwise involve extra cost under this contract, he shall give the Architect written notice thereof within a reasonable time after the receipt of such instructions, and in any event before proceeding to execute the work, except in emergency endangering life or property, and the procedure shall then be as provided for changes in the work. No such claim shall be valid unless so made.

**Art. 17. Deductions for Uncorrected Work.**—If the Architect and Owner deem it inexpedient to correct work injured or done not in accordance with the Contract, an equitable deduction from the contract price shall be made therefor.

**Art. 18. Delays and Extension of Time.**—If the Contractor be delayed at any time in the progress of the work by any act or neglect of the Owner or the Architect, or of any employee of either, or by any separate Contractor employed by the Owner, or by changes ordered in the work, or by strikes, lockouts, fire, unusual delay in transportation, unavoidable casualties or any causes beyond the Contractor's control, or by delay authorized by the Architect pending arbitration, or by any cause which the Architect shall decide to justify the delay, then the time of completion shall be extended for such reasonable time as the Architect may decide.

No such extension shall be made for delay occurring more than seven days before claim therefor is made in writing to the Architect. In the case of a continuing cause of delay, only one claim is necessary.

If no schedule or agreement stating the dates upon which drawings shall be furnished is made, then no claim for delay shall be allowed on account of failure to furnish drawings until two weeks after demand for such drawings and not then unless such claim be reasonable.

This article does not exclude the recovery of damages for delay by either party under other provisions in the contract documents.

**Art. 19 Correction of Work Before Final Payment.**—The Contractor shall promptly remove from the premises all work condemned by the Architect as failing to conform to the Contract, whether incorporated or not, and the Contractor shall promptly replace and re-execute his own work in accordance with the Contract and without expense to the Owner and shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement.

If the Contractor does not remove such condemned work within a reasonable time, fixed by written notice, the Owner may remove it and may store the material at the expense of the Contractor. If the Contractor does not pay the expenses of such removal within ten days' time thereafter, the Owner may, upon ten days' written notice, sell such materials at auction or at private sale and shall account for the net proceeds thereof, after deducting all the costs and expenses that should have been borne by the Contractor.

**Art. 20. Correction of Work After Final Payment.**—Neither the final certificate nor payment nor any provision in the Contract Documents shall relieve the Contractor of responsibility for faulty materials or workmanship and, unless otherwise specified, he shall remedy any defects due thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one year from the date of substantial completion. The Owner shall give notice of observed defects with reasonable promptness. All questions arising under this article shall be decided by the Architect subject to arbitration.

**Art. 21. The Owner's Right to Do Work.**—If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this contract, the Owner, after three days' written notice to the Contractor may, without prejudice to any other remedy he may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor, provided, however, that the Architect shall approve both such action and the amount charged to the Contractor.

**Art. 22. Owner's Right to Terminate Contract.**—If the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he should persistently or repeatedly refuse or should fail, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if he should fail to make prompt payment to subcontractors or for material or labor, or persistently disregard laws, ordinances or the instructions of the Architect, or otherwise be guilty of a substantial violation of any provision of the contract, then the Owner, upon the certificate of the Architect that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor seven days' written notice, terminate the employment of the Contractor and take possession of the premises and of all materials, tools and appliances thereon and finish the work by whatever method he may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price shall exceed the expense of finishing the work including compensation for additional managemental and administrative services, such excess shall be paid to the Contractor. If such expense shall exceed such unpaid balance, the Contractor shall pay the difference to the Owner. The expense incurred by the Owner as herein provided, and the damage incurred through the Contractor's default, shall be certified by the Architect.

**Art. 23 Contractor's Right to Stop Work or Terminate Contract.**—If the work should be stopped under an order of any court, or other public authority, for a period of three months, through no act or fault of the Contractor or of anyone employed by him, or if the Architect should fail to issue any certificate for payment within seven days after it is due, or if the Owner should fail to pay to the Contractor within seven days of its maturity and presentation, any sum certified by the Architect or awarded by arbitrators, then the Contractor may, upon seven days' written notice to the Owner and the Architect, stop work or terminate this contract and recover from the Owner payment for all work executed and any loss sustained upon any plant or materials and reasonable profit and damages.

**Art. 24. Applications for Payments.**—The Contractor shall submit to the Architect an application for each payment, and, if required, receipts or other vouchers, showing his payments for materials and labor, including payments to subcontractors as required by Article 37.

If payments are made on valuation of work done, such application shall be submitted at least ten days before each payment falls due, and, if required, the Contractor shall, before the first application, submit to the Architect a schedule of values of the various parts of the work, including quantities, aggregating the total sum of the contract, divided so as to facilitate payments to sub-

contractors in accordance with Article 37 (e), made out in such form as the Architect and the Contractor may agree upon, and, if required, supported by such evidence as to its correctness as the Architect may direct. This schedule, when approved by the Architect, shall be used as a basis for certificates of payment, unless it be found to be in error. In applying for payments, the Contractor shall submit a statement based upon this schedule, and, if required, itemized in such form and supported by such evidence as the Architect may direct, showing his right to the payment claimed.

If payments are made on account of materials delivered and suitably stored at the site but not incorporated in the work, they shall, if required by the Architect, be conditional upon submission by the Contractor of bills of sale or such other procedure as will establish the Owner's title to such material or otherwise adequately protect the Owner's interest.

**Art. 25. Certificates of Payments.**—If the Contractor has made application as above, the Architect shall, not later than the date when each payment falls due, issue to the Contractor a certificate for such amount as he decides to be properly due, or state in writing his reasons for withholding a certificate.

No certificate issued nor payment made to the Contractor, nor partial or entire use or occupancy of the work by the Owner, shall be an acceptance of any work or materials not in accordance with this contract. The making and acceptance of the final payment shall constitute a waiver of all claims by the Owner, other than those arising from unsettled liens, from faulty work appearing after final payment or from requirement of the specifications, and of all claims by the Contractor, except those previously made and still unsettled.

Should the Owner fail to pay the sum named in any certificate of the Architect or in any award by arbitration, upon demand when due, the Contractor shall receive, in addition to the sum named in the certificate, interest thereon at the legal rate in force at the place of building.

**Art. 26. Payments Withheld.**—The Architect may withhold or, on account of subsequently discovered evidence, nullify the whole or a part of any certificate to such extent as may be necessary to protect the Owner from loss on account of:

(a) Defective work not remedied.
(b) Claims filed or reasonable evidence indicating probable filing of claims.
(c) Failure of the Contractor to make payments properly to subcontractors or for material or labor.
(d) A reasonable doubt that the contract can be completed for the balance then unpaid.
(e) Damage to another Contractor.

When the above grounds are removed payment shall be made for amounts withheld because of them.

**Art. 27. Contractor's Liability Insurance.**—The Contractor shall maintain such insurance as will protect him from claims under workmen's compensation acts and from claims for damages because of bodily injury, including death, which may arise from and during operations under this Contract, whether such operations be by himself or by any subcontractor or anyone directly or indirectly employed by either of them. This insurance shall be written for not less than any limits of liability specified as part of this contract. This insurance need not cover any liability imposed by Article 31 of these General Conditions. Certificates of such insurance shall be filed with the Owner if he so requires.

**Art. 28. Owner's Liability Insurance.**—The Owner shall be responsible for and at his option may maintain such insurance as will protect him from his contingent liability to others for damages because of bodily injury, including death, which may arise from operations under this contract, and any other liability for damages which the Contractor is required to insure under any provision of this contract.

**Art. 29. Fire Insurance.**—The Owner shall effect and maintain fire insurance upon the entire structure on which the work of this contract is to be done to one hundred per cent of the insurable value thereof, including items of labor and materials connected therewith whether in or adjacent to the structure insured, materials in place or to be used as part of the permanent construction including surplus materials, shanties, protective fences, bridges, or temporary structures, miscellaneous materials and supplies incident to the work, and such scaffoldings, stagings, towers, forms, and equipment as are not owned or rented by the contractor, the cost of which is included in the

cost of the work. EXCLUSIONS: This insurance does not cover any tools owned by mechanics, any tools, equipment, scaffolding, staging, towers, and forms owned or rented by the Contractor, the capital value of which is not included in the cost of the work, or any cook shanties, bunk houses or other structures erected for housing the workmen. The loss, if any, is to be made adjustable with and payable to the Owner as Trustee for the insureds as their interests may appear, except in such cases as may require payment of all or a proportion of said insurance to be made to a mortgagee as his interests may appear.

The Contractor and all subcontractors shall be named or designated in such capacity as insured jointly with the Owner in all policies, all of which shall be open to the Contractor's inspection. Certificates of such insurance shall be filed with the Contractor if he so requires. If the Owner fails to effect or maintain insurance as above and so notifies the Contractor, the Contractor may insure his own interest and that of the subcontractors and charge the cost thereof to the Owner. If the Contractor is damaged by failure of the Owner to maintain such insurance or to so notify the Contractor, he may recover as stipulated in the contract for recovery of damages. If extended coverage or other special insurance not herein provided for is required by the Contractor, the Owner shall effect such insurance at the Contractor's expense by appropriate riders to his fire insurance policy.

If required in writing by any party in interest, the Owner as Trustee shall, upon the occurrence of loss, give bond for the proper performance of his duties. He shall deposit any money received from insurance in an account separate from all his other funds and he shall distribute it in accordance with such agreement as the parties in interest may reach, or under an award of arbitrators appointed, one by the Owner, another by joint action of the other parties in interest, all other procedure being as provided elsewhere in the contracts for Arbitration. If after loss no special agreement is made, replacement of injured work shall be ordered and executed as provide for changes in the work.

The Trustees shall have power to adjust and settle any loss with the insurers unless one of the Contractors interested shall object in writing within three working days of the occurrence of loss, and thereupon arbitrators shall be chosen as above. The Trustee shall in that case make settlement with the insurers in accordance with the directions of such arbitrators, who shall also, if distribution by arbitration is required, direct such distribution.

**Art. 30. Guaranty Bonds.**—The Owner shall have the right, prior to the signing of the Contract, to require the Contractor to furnish bond covering the faithful performance of the Contract and the payment of all obligations arising thereunder, in such form as the Owner may prescribe and with such sureties as he may approve. If such bond is required by instructions given previous to the submission of bids, the premium shall be paid by the Contractor; if subsequent thereto, it shall be paid by the Owner.

**Art. 31. Damages.**—If either party to this Contract should suffer damage in any manner because of any wrongful act or neglect of the other party or of anyone employed by him, then he shall be reimbursed by the other party for such damage, provided, the Owner shall be responsible for and at his option insure against loss of use of any of his existing property, due to fire or otherwise, however caused.

Claims under this clause shall be made in writing to the party liable within a reasonable time of the first observance of such damage and not later than the time of final payment, except as expressly stipulated otherwise in the case of faulty work or materials, and shall be adjusted by agreement or arbitration.

The Contractor is relieved of responsibility for damages to the work due to causes beyond the control of and without fault or negligence of the Contractor.

**Art. 32. Liens.**—Neither the final payment nor any part of the retained percentage shall become due until the Contractor, if required, shall deliver to the Owner a complete release of all liens arising out of this Contract, or receipts in full in lieu thereof and, if required in either case, an affidavit that so far as he has knowledge or information the releases and receipts include all the labor and material for which a lien could be filed; but the Contractor may, if any subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the Owner, to indemnify him against any lien. If any lien remain unsatisfied after all payments are made, the Contractor shall refund to the Owner all moneys that the latter may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.

**Art. 33. Assignment.** Neither party to the Contract shall assign the Contract or sublet it as a

whole without the written consent of the other, nor shall the Contractor assign any moneys due or to become due to him hereunder, without the previous written consent of the Owner.

**Art. 34. Mutual Responsibility of Contractors.**—Should the Contractor cause damage to any separate contractor on the work the Contractor agrees, upon due notice, to settle with such contractor by agreement or arbitration, if he will so settle. If such separate contractor sues the Owner on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor, who shall defend such proceedings at the Owner's expense and, if any judgment against the Owner arise therefrom, the Contractor shall pay or satisfy it and pay all costs incurred by the Owner.

**Art. 35. Separate Contracts.**—The Owner reserves the right to let other contracts in connection with this work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with theirs.

If any part of the Contractor's work depends for proper execution or results upon the work of any other contractor, the Contractor shall inspect and promptly report to the Architect any defects in such work that render it unsuitable for such proper execution and results. His failure so to inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of his work, except as to defects which may develop in the other contractor's work after the execution of his work.

To insure the proper execution of his subsequent work the Contractor shall measure work already in place and shall at once report to the Architect any discrepancy between the executed work and the drawings.

**Art. 36. Subcontracts.**—The Contractor shall, as soon as practicable after the execution of the contract, notify the Architect in writing of the names of subcontractors proposed for the principal parts of the work and for such others as the Architect may direct and shall not employ any that the Architect may within a reasonable time object to as incompetent or unfit.

If the Contractor has submitted before execution of the contract a list of subcontractors and the change of any name on such list is required in writing by the Owner after such execution, the contract price shall be increased or diminished by the difference in cost occasioned by such change.

The Architect shall, on request, furnish to any subcontractor, wherever practicable, evidence of the amounts certified on his account.

The Contractor agrees that he is as fully responsible to the Owner for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

Nothing contained in the contract documents shall create any contractual relation between any subcontractor and the Owner.

**Art. 37. Relations of Contractor and Subcontractor.**—The Contractor agrees to bind every Subcontractor and every Subcontractor agrees to be bound by the terms of the Agreement, the General Conditions, the Drawings and Specifications as far as applicable to his work, including the following provisions of this article, unless specifically noted to the contrary in a subcontract approved in writing as adequate by the Owner or Architect.

This does not apply to minor subcontracts.

The Subcontractor agrees—

(a) To be bound to the Contractor by the terms of the Agreement, General Conditions, Drawings and Specifications, and to assume toward him all the obligations and responsibilities that he, by those documents, assumes toward the Owner.

(b) To submit to the Contractor applications for payment in such reasonable time as to enable the Contractor to apply for payment under Article 24 of the General Conditions.

(c) To make all claims for extras, for extensions of time and for damages for delays or otherwise, to the Contractor in the manner provided in the General Conditions for like claims by the Contractor upon the Owner, except that the time for making claims for extra cost is one week.

The Contractor agrees—

(d) To be bound to the Subcontractor by all the obligations that the Owner assumes to the Contractor under the Agreement, General Conditions, Drawings and Specifications, and by all the provisions thereof affording remedies and redress to the Contractor from the Owner.

(e) To pay the Subcontractor, upon the payment of certificates, if issued under the schedule of values described in Article 24 of the General Conditions, the amount allowed to the Contractor on account of the Subcontractor's work to the extent of the Subcontractor's interest therein.

(f) To pay the Subcontractor, upon the payment of certificates, if issued otherwise than as in (e), so that at all times his total payments shall be as large in proportion to the value of the work done by him as the total amount certified to the Contractor is to the value of the work done by him.

(g) To pay the Subcontractor to such extent as may be provided by the Contract Documents or the subcontract, if either of these provides for earlier or larger payments than the above.

(h) To pay the Subcontractor on demand for his work or materials as far as executed and fixed in place, less the retained percentage, at the time the certificate should issue, even though the Architect fails to issue it for any cause not the fault of the Subcontractor.

(j) To pay the Subcontractor a just share of any fire insurance money received by him, the Contractor, under Article 29 of the General Conditions.

(k) To make no demand for liquidated damages or penalty for delay in any sum in excess of such amount as may be specifically named in the subcontract.

(l) That no claim for services rendered or materials furnished by the Contractor to the Subcontractor shall be valid unless written notice thereof is given by the Contractor to the Subcontractor during the first ten days of the calendar month following that in which the claim originated.

(m) To give the Subcontractor an opportunity to be present and to submit evidence in any arbitration involving his rights.

(n) To name as arbitrator under arbitration proceedings as provided in the General Conditions the person nominated by the Subcontractor, if the sole cause of dispute is the work, materials, rights or responsibilities of the Subcontractor; or, if of the Subcontractor and any other subcontractor jointly, to name as such arbitrator the person upon whom they agree.

The Contractor and the Subcontractor agree that—

(o) In the matter of arbitration, their rights and obligations and all procedure shall be analogous to those set forth in this contract.

Nothing in this article shall create any obligation on the part of the Owner to pay to or to see to the payment of any sums to any subcontractor.

**Art. 38. Architect's Status.**—The Architect shall have general supervision and direction of the work. He is the agent of the Owner only to the extent provided in the Contract Documents and when in special instances he is authorized by the Owner so to act, and in such instances he shall, upon request, show the Contractor written authority. He has authority to stop the work whenever such stoppage may be necessary to insure the proper execution of the Contract.

As the Architect is, in the first instance, the interpreter of the conditions of the Contract and the judge of its performance, he shall side neither with the Owner nor with the Contractor, but shall use his powers under the contract to enforce its faithful performance by both.

In case of the termination of the employment of the Architect, the Owner shall appoint a capable and reputable Architect, against whom the Contractor makes no reasonable objection, whose status under the contract shall be that of the former Architect; any dispute in connection with such appointment to be subject to arbitration.

**Art. 39. Architect's Decisions.**—The Architect shall, within a reasonable time, make decisions on all claims of the Owner or Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the Contract Documents.

The Architect's decisions, in matters relating to artistic effect, shall be final, if within the terms of the Contract Documents.

Except as above or as otherwise expressly provided in the Contract Documents, all the Architect's decisions are subject to arbitration.

If, however, the Architect fails to render a decision within ten days after the parties have presented their evidence, either party may then demand arbitration. If the Architect renders a decision after arbitration proceedings have been initiated, such decision may be entered as evidence but shall not disturb or interrupt such proceedings except where such decision is acceptable to the parties concerned.

**Art. 40. Arbitration.**—All disputes, claims or questions subject to arbitration under this contract shall be submitted to arbitration in accordance with the provisions, then obtaining, of the Standard Form of Arbitration Procedure of The American Institute of Architects, and this agreement shall be specifically enforceable under the prevailing arbitration law, and judgment upon the award rendered may be entered in the court of the forum, state or federal, having jurisdiction. It is mutually agreed that the decision of the arbitrators shall be a condition precedent to any right of legal action that either party may have against the other.

The Contractor shall not cause a delay of the work during any arbitration proceedings, except by agreement with the Owner.

Notice of the demand for arbitration of a dispute shall be filed in writing with the Architect and the other party to the contract. If the arbitration is an appeal from the Architect's decision, the demand therefor shall be made within ten days of its receipt; in any other case the demand for arbitration shall be made within a reasonable time after the dispute has arisen; in no case, however, shall the demand be made later than the time of final payment, except as otherwise expressly stipulated in the contract.

The arbitrators, if they deem that the case requires it, are authorized to award to the party whose contention is sustained, such sums as they or a majority of them shall deem proper to compensate him for the time and expense incident to the proceeding and, if the arbitration was demanded without reasonable cause, they may also award damages for delay. The arbitrators shall fix their own compensation, unless otherwise provided by agreement, and shall assess the costs and charges of the proceedings upon either or both parties.

**Art. 41. Cash Allowances.**—The Contractor shall include in the contract sum all allowances named in the Contract Documents and shall cause the work so covered to be done by such contractors and for such sums as the Architect may direct, the contract sum being adjusted in conformity therewith. The Contractor declares that the contract sum includes such sums for expenses and profit on account of cash allowances as he deems proper. No demand for expenses or profit other than those included in the contract sum shall be allowed. The Contractor shall not be required to employ for any such work persons against whom he has a reasonable objection.

**Art. 42. Use of Premises.**—The Contractor shall confine his apparatus, the storage of materials and the operations of his workmen to limits indicated by law, ordinances, permits or directions of the Architect and shall not unreasonably encumber the premises with his materials.

The Contractor shall not load or permit any part of the structure to be loaded with a weight that will endanger its safety.

The Contractor shall enforce the Architect's instructions regarding signs, advertisements, fires and smoking.

**Art. 43. Cutting, Patching and Digging.**—The Contractor shall do all cutting, fitting or patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by work of other contractors shown upon, or reasonably implied by, the Drawings and Specifications for the completed structure, and he shall make good after them as the Architect may direct.

Any cost caused by defective or ill-timed work shall be borne by the party responsible therefor.

The Contractor shall not endanger any work by cutting, digging or otherwise, and shall not cut or alter the work of any other contractor save with the consent of the Architect.

**Art. 44. Cleaning Up.**—The Contractor shall at all times keep the premises free from accumulations of waste material or rubbish caused by his employees or work, and at the completion of the work he shall remove all his rubbish from and about the building and all his tools, scaffolding and surplus materials and shall leave his work "broom-clean" or its equivalent, unless more exactly specified. In case of dispute the Owner may remove the rubbish and charge the cost to the several contractors as the Architect shall determine to be just.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

**Packing and Shipping.** [illegible]

[illegible]

[illegible]

# SECTION E

## SUPPLEMENTARY GENERAL CONDITIONS

**E–01. The General Conditions of the Contract for the Construction of Buildings:** Standard form of the American Institute of Architects, Sixth Edition, Articles 1 to 44 inclusive, bound herein and hereinafter referred to as the "A. I. A. General Conditions," and the paragraphs of this section form the General Conditions of the Contract and shall apply to the General Contractor and all Subcontractors. Where any article, paragraph, or subparagraph in the A. I. A. General Conditions is supplemented by one of the following paragraphs, the provisions of such article, paragraph, or subparagraph shall remain in effect, and the supplementary provisions shall be considered as added thereto. Where any article, paragraph, or subparagraph in the A. I. A. General Conditions is amended, voided, or superseded by one of the following paragraphs, the provisions of such article, paragraph, or subparagraph not so amended, voided, or superseded shall remain in effect.

**E–02. Definitions:** (**a**) Paragraph (a) of Article 1 of the A. I. A. General Conditions is amended by the addition of the following provision:

> The contract documents shall also include the signed proposal form as submitted and the notice of acceptance of said proposal.

(**b**) Article 1 of the A. I. A. General Conditions is amended by the addition of the following provision:

> The term "specifications" shall include all written matter contained in the bound volume and any addenda thereto.

**E–03. Materials, Appliances, Employees:** Article 9 of the A. I. A. General Conditions is amended by the addition of the following paragraph:

> When reference is made in the specifications to trade names or to the names of manufacturers, such references are made solely to designate and identify the quality of material or equipment to be furnished, and are not intended to restrict competitive bidding. In case the Contractor wishes to use materials and equipment other than those mentioned in the specifications, prior written approval of the architect must be obtained. The architect will approve such materials and equipment upon written request if he considers them to be suitable and equal to those specified. Wherever "approved," "satisfactory," "as directed," or similar phrases are used in these specifications, they shall be understood to mean that the material or construction method referred to shall be approved by, satisfactory to, or as directed by the architect.

**E–04. Protection of Work and Property:** Article 12 of the A. I. A. General Conditions is amended by the addition of the following paragraph:

> BLASTING: Any blasting by the Contractor shall be done with the use of heavy matting adequate to prevent scattering. (See also Articles E–12 and E–27.)

**E–05. Changes in the Work:** Article 15 of the A. I. A. General Conditions is amended by the addition of the following provisions:

(**a**) The Owner will not be responsible for any extra work or any changes in the work involving extra cost unless approval in writing is furnished by the Owner in advance.

(**b**) The contractor shall make no changes whatsoever in the work without written authorization from the owner.

(**c**) Should conditions encountered below the surface of the ground be at variance with conditions indicated by drawings and specifications, the contract sum shall be equitably adjusted pursuant to Article 15 of the A. I. A. General Conditions upon claim by either party, provided, however, that the owner shall not be responsible for any extra costs for such work as may be necessitated unless he shall have authorized the work in writing prior to its commencement (See Paragraph E–17).

(**d**) In cases (a) and (c), of Article 15, for extra work performed, the allowance for overhead and profit combined, included in the total cost to the Owner, shall be based upon the following schedule:

1. To the Contractor for work which he performs with his own forces, not to exceed 20% of his net additional cost.
2. To a subcontractor for work which he performs with his own forces, not to exceed 20% of his net additional cost.

3. To the Contractor for work performed by his subcontractor, not to exceed 7½% of the amount due the subcontractor. These percentages shall be applied to the net additional cost as defined herein. If the net cost value of a change results in a credit from the contractor or subcontractor, the credit given shall be the net cost without overhead or profit. The "net cost" used herein shall mean the difference between all proper cost additions and deductions. The "cost" as used herein may include all items of labor or materials, the use of power tools and equipment, and all such items of cost as public liability and workmen's compensation insurance, pro rata charges for additional time of foremen, social security, old age and unemployment insurance. Among the items to be considered as overhead are insurance other than as mentioned in this article, bond premiums, supervision, superintendence, time keepers, clerks, watchmen, small tools, incidental job burdens and general office expense, and all other items not included in the cost as defined in this article.

4. Any other provisions in the contract documents to the contrary notwithstanding, only demonstrable, direct, out-of-pocket costs plus percentages set forth herein shall be allowable. No wages of a foreman shall be allowable for change order work carried on concurrently with contract work unless the costs include a claim for extension of time caused by the ordering of the change.

**E–06.** Omitted.

**E–07. Correction of Work after Final Payment:** Article 20 of the A. I. A. General Conditions is amended by the addition of the following provisions:

GUARANTEE—The contractor shall furnish a written guarantee that all work executed under the plans and these specifications will be free from defects of materials and workmanship for a period of one year from the date of final acceptance and that all defects occurring within that period shall be replaced at no cost to the owner.

**(a)** The contractor shall, in case of work performed by his subcontractors and where guarantees are required, secure warranties from said subcontractors and deliver them to the owner upon completion of the work.

**(b)** Where guarantees or warranties are written in any section for a period of more than one year, such longer terms shall apply.

**(c)** Nothing in the above shall be deemed to imply that this guarantee shall apply to work which has been abused or neglected by the owner.

**(d)** It is specifically understood that the terms of the guarantees called for in the specifications, the compliance therewith, and the fulfillment of all obligations thereunder are fully protected by the performance bond furnished by the general contractor.

**E–08. Contractor's Right to Stop Work or Terminate Contract:** Article 23 of the A. I. A. General Conditions is hereby deleted in its entirety and the following is substituted in lieu thereof:

"If the work should be stopped under an order of any court, or other public authority, for a period of three months, through no act or fault of the Contractor or of anyone employed by him, or if the Architect should fail to issue any certificate for payment within fourteen days after it is due, or if the Owner should fail to pay to the Contractor within fourteen days of its maturity and presentation any sum certified by the Architect or awarded by arbitrators, then the Contractor may, upon seven days' written notice to the Owner and the Architect, stop work or terminate this contract and recover from the Owner payment for all work executed and any loss sustained upon any plant or materials and reasonable profit and damages."

**E–09. Applications for Payments:** Article 24 of the A. I. A. General Conditions is amended by the addition of the provision that:

The Contractor shall furnish the initial breakdown on a form to be furnished by the Owner with the complete breakdown of the contract price so arranged and itemized as to meet the approval of the Owner.

**E–10. Certificates for Payments:** Article 25 of the A. I. A. General Conditions is amended by the addition of the following provisions:

> "Final payment shall be made by check payable jointly to the Contractor and Surety and shall be mailed to the Surety. Acceptance of the final payment shall operate as and shall be a release to the Building Authority from all claims of liability under the contract for anything done or furnished or relating to the work under this contract.
>
> "Payments will be made by the Owner to the Contractor on or about the 15th day of each month as follows: 90% of the value, based on contract prices, of labor and materials incorporated in the work and of materials suitably stored at the site thereof up to the first day of that month as estimated by the Architect, less the aggregate of previous payments. Final payment will be made 30 days after final completion and acceptance of the work."

**E–11.** Omitted.

**E–12. Insurance:** Articles 27, 28, and 29 of the A. I. A. General Conditions are deleted and the following substituted therefor:

(**a**) The General Contractor shall be responsible from the time of signing the contract or from the time of the beginning of the first work, whichever shall be earlier, for all injury or damage of any kind resulting from this work to persons or property regardless of who may be the owner of the property. In addition to the liability imposed upon the Contractor on account of personal injury (including death) or property damage suffered through the Contractor's negligence, which liability is not impaired or otherwise affected hereby, the Contractor assumes the obligation to save the Owner harmless and to indemnify the Owner from every expense, liability or payment arising out of or through injury (including death) to any person or persons or damage to property (regardless of who may be the owner of the property) of any place in which work is located arising out of or suffered through any act or omission of the Contractor or any subcontractor, or anyone either—

1. directly or indirectly employed by or
2. under the supervision of any of them in the prosecution of the work included in this contract.

(**b**) The contractor agrees to comply with the provisions of the Workmen's Compensation Laws of the State in which this work is performed and to require all subcontractors likewise to comply. It shall be stated on every policy or certificate of insurance, as the case may be, that "The insurance company agrees that Policy No. ________ shall not be cancelled, changed, or allowed to lapse until ten days after the State School Building Authority, Room 408, 20 Ivy Street, S. E., Atlanta, Georgia, has received written notice as evidenced by return receipt of registered letter, and it is agreed further that as to lapsing such notice will not be valid if mailed more than fifteen days prior to the expiration date shown on this policy."

(**c**) The contractor agrees that, prior to the beginning of any work by the Contractor or any subcontractor, as the case may be, he (the contractor) will furnish the following to the owner for himself and for each subcontractor:

Certificate from insurance company showing issuance of workmen's compensation coverage for the State of Georgia or a certificate from Georgia Workmen's Compensation Board showing proof of ability to pay compensation directly.

(**d**) The contractor further shall maintain such other insurance (with limits as shown below) as shall protect the contractor and owner from any claims for property damage or personal injury, including death, which may arise out of operations under this contract, and the contractor shall furnish the owner certificates and policies of such insurance (as shown below).

(**e**) Below is listed the additional insurance coverage which must be procured by the contractor at his own expense. The contractor agrees to follow the instructions indicated in each case:

1. OWNER'S PROTECTIVE LIABILITY INSURANCE—taken out in name of the State School Building Authority as insured.

   Personal injury, including death—limits of $100,000 for each person and $300,000 for each accident.

   Property damage—limits of $50,000 for each accident and $100,000 for the aggregate of operations.

   DISPOSITION: Original policy must be deposited with Owner prior to commencement of work.

2. CONTRACTOR'S PROTECTIVE LIABILITY INSURANCE—taken out in the name of the Contractor.

Personal injury including death—limits of $100,000 for each person and $300,000 for each accident.

Property damage—limits of $50,000 for each accident and $100,000 for the aggregate of operations.

DISPOSITION: Certificate of insurance must be sent to Owner prior to commencement of work.

2a. CONTRACTOR'S PUBLIC LIABILITY INSURANCE—taken out in the name of the Contractor.

Personal injury, including death—limits of $100,000 for each person and $300,000 for each accident.

Property damage—limits of $50,000 for each accident and $100,000 for the aggregate of operations.

DISPOSITION: Certificate of insurance must be sent to Owner prior to commencement of work.

3. BUILDER'S RISK INSURANCE—payable to the Contractor and Owner, as their interests may appear, upon the entire structure and upon all materials in or adjacent thereto which are to be made a part of the insured structure to 100% of the insurable value thereof covering fire, extended coverage, vandalism and malicious mischief.

DISPOSITION: Policy to be deposited with Owner prior to commencement of work.

No insurance will be acceptable unless written by a company licensed by the State Insurance Department to do business in Georgia at the time the policy is issued, and the company must in addition be acceptable to the Owner.

**E–13. Mutual Responsibility of Contractors:** Article 34 of the A. I. A. General Conditions is deleted and the following is substituted in lieu thereof:

> Should the Contractor cause damage to any separate contractor on the work the Contractor agrees, upon due notice, to settle with such contractor by agreement or arbitration, if he will so settle. If such separate contractor sues the Owner on account of any damage alleged to have been so sustained, the Owner shall notify the Contractor, who shall defend such proceedings at his own expense and, if any judgment against the Owner arise therefrom, the Contractor shall pay or satisfy it and pay all costs incurred by the Owner.

**E–14. Separate Contracts:** Article 35 of the A. I. A. General Conditions is amended by the addition of the following provision:

> When the work has been substantially completed and the architect determines that no inconvenience will be suffered by the contractor, the owner will be permitted to deliver loose furniture and other equipment to the building.

**E–15. Subcontracts:** Article 36 of the A. I. A. General Conditions is amended by the addition of the following paragraphs:

> As soon as possible after notice of award and in any event not later than three days prior to the time set for execution of the A. I. A. Form of Agreement, the Contractor shall furnish the names of the subcontractors he will use on the work. The furnishing of such names shall not affect the authority of the Architect under Article 36 to reject any subcontractor as incompetent or unfit and there shall be no claim against the Owner for adjustment in the contract sum on account of such rejection.
>
> The Contractor shall not employ any subcontractor that the Architect may within a reasonable time object to as incompetent or unfit or that the Owner may object to on the ground that the record of the subcontractor on other work of the Owner has not, in the opinion of the Owner, been satisfactory.

**E–16.** Omitted.

**E–17. Existing Conditions:** The Contractor, in undertaking the work under this contract, is assumed to have visited the premises and to have taken into consideration all conditions which might affect his work. No consideration will be given any claim based on lack of knowledge of existing conditions except where the contract documents make definite provision for adjustment of cost or extension of time due to existing conditions which cannot be readily ascertained. (See Paragraph E–05 (c).)

**E–18. Measurements and Dimensions:** Before ordering material or doing work which is dependent for proper size of installation upon coordination with building conditions, the Contractor shall verify all dimensions by taking measurements at the building and shall be responsible for the correctness of same. No consideration will be given to any claim based on differences between the actual dimensions and those indicated on the drawings. Any discrepancies between the drawings and/or the specifications and the existing conditions shall be referred to the Architect for adjustment before any work affected thereby is begun.

**E–19. Specification Arrangement:** The Specifications are separated into numbered and titled divisions for convenience of reference. Neither the owner nor the architect assumes any responsibility for defining the limits of any subcontracts on account of the arrangement of the specifications. Notwithstanding the appearance of such language in the various divisions of the specifications as, "The Plumbing Contractor," "The Electrical Contractor," "The Roofing Contractor," **etc.**, the general contractor is responsible to the owner for the entire contract and the execution of all of the work referred to in the contract documents.

**E–20. Commencement, Prosecution, and Completion:** The contractor will be required to commence work under this contract within ten days after date of written notice from the owner to proceed, to prosecute the work with faithfulness and energy and to complete the work within the time stipulated in the proposal form. Commencement of work shall mean actual physical work on the site.

**E–21. Alternates:** All alternate bids are deductive. No alternate bids will be taken unless the base bid exceeds the amount of money available for the project, and any alternate, or alternates, if taken, will be taken in numerical sequence.

**E–22. Cooperation:** The general contractor and all subcontractors shall cooperate with one another and with other contractors doing related work, and shall coordinate their work with the work of other trades and other contractors so as to facilitate the general progress of the work. Each trade shall afford all other trades and all other contractors every reasonable opportunity for the installation of their work and for the storage of their materials.

**E–23. Discrepancies:** The following principles shall govern the settlement of disputes which may arise over discrepancies in the contract documents: (**a**) as between figures given on drawings and the scaled measurements, the figures shall govern; (**b**) as between large-scale drawings and small-scale drawings, the larger scale shall govern; (**c**) as between drawings and specifications, the requirements of the specifications shall govern; and (**d**) as between the Form of Agreement and the specifications, the requirements of the Form of Agreement shall govern. Discrepancies noted shall be reported to the architect. The principles set forth herein shall not alter provisions of Article 2 of the A. I. A. General Conditions.

**E–24. Progress Reports:** When requested by the architect, the contractor shall furnish such reports as are reasonably desirable as to the progress, condition of the job, and anticipated schedule of completing the various phases of the work.

**E–25. Office for Resident Engineer Inspector:** The contractor shall provide a temporary office at the site of the work for the use of the resident engineer inspector. The office shall be weather-tight and shall be provided with heat, electric lights, telephone extension, and adequate windows. The contractor shall also provide plan table and rack, chair, legal size fiber transfer file with fifty (50) manila folders for the permanent records, and use of such business machines as may be necessary for the resident engineer inspector's duties.

**E–26. Affidavits:** Before acceptance of work, the contractor will be required to furnish Non-Influence Affidavit and Statutory Affidavit in duplicate in the exact form as shown on the following pages.

# NON-INFLUENCE AFFIDAVIT

COUNTY OF____________________________________

STATE ______________________________________

I do solemnly swear on my oath that as to the contract dated ______________________, 195__, between ______________________________________ and the State School Building Authority I have no knowledge of the exertion of any influence or the attempted exertion of any influence on the firm on behalf of which this affidavit is made in any way, manner, or form in the purchase of materials, equipment, or other items involved in the construction, manufacture or employment of labor under the aforesaid contract, by any member of the State School Building Authority or any employee of the State School Building Authority or any member of the State Board of Education or any employee of the State Board of Education, or any member of the Local Board of Education, or any employee of the Local Board of Education, or any person connected with the State Government of Georgia in any way whatsoever.

This ________________________________________ day of ________________________________________, 195__.

________________________________________ (L. S.)
Signature

________________________________________
Title

________________________________________
Firm

County of ______________________________________

State of _______________________________________

Personally before me, the undersigned authority, appeared ______________________, who is known to me to be an official of the firm of __________________________, who, after being duly sworn, stated on his oath that he had read the above statement and that the same is true and correct.

________________________________________
Notary Public

My commission expires __________________________,

This ____________________________ day of ______________________________________________, 195__.

(Form 5B–15)
(June 1, 1954)

# STATUTORY AFFIDAVIT

STATE OF GEORGIA, COUNTY OF ____________________

FROM: ____________________
(Contractor)

TO: State School Building Authority, Owner

RE: Contract entered into the __________ day of ____________________, 195__,
between the above-mentioned parties for the construction of a ____________________
____________________
at ____________________

KNOW ALL MEN BY THESE PRESENTS:

1. The undersigned hereby certifies that all work required under the above contract has been performed in accordance with the terms thereof, that all materialmen, subcontractors, mechanics, and laborers have been paid and satisfied in full and that there are no outstanding claims of any character arising out of the performance of the contract which have not been paid and satisfied in full.

2. The undersigned further certifies that to the best of his knowledge and belief there are no unsatisfied claims for damages resulting from injury or death to any employees, subcontractors, or the public at large arising out of the performance of the contract, or any suits or claims for any other damage of any kind, nature, or description which might constitute a lien upon the property of the Owner.

3. The undersigned makes this affidavit as provided by law and for the purpose of receiving final payment in full settlement of all claims arising under or by virtue of the contract, and acceptance of such payment is acknowledged as a release of the Owner from any and all claims arising under or by virtue of the contract.

IN WITNESS WHEREOF, the undersigned has signed and sealed this instrument this __________
day of ____________________, 195__.

____________________
____________________
____________________

Personally appeared before the undersigned, ____________________ and ____________________ who after being duly sworn, depose(s) and say(s) that the facts stated in the above affidavit are true.

____________________
Notary Public

____________________ County, Georgia.

This ____________________ day of ____________________, 195__.

My commission expires ____________________.

(Form 5B–16)
(June 1, 1954)

**E–27. Protection of Work and Property:** The first paragraph of Article 12 of the A. I. A. General Conditions is deleted and the following is substituted therefor:

> The Contractor shall continuously maintain adequate protection of all his work from damage and shall protect all other property from damage, injury, or loss arising in connection with this work regardless of who may be the owner of said property. He shall adequately protect all property from damage as provided by law and as provided in Article E–12 of the General Conditions, regardless of who may be the owner of such property. (See also Articles E–04 and E–12.)

**E–28. Performance Bond and Payment Bond:** The Contractor will be required to furnish both a performance bond and a payment bond (A. I. A. Form 107) which have been altered as follows:

**(a) Performance Bond**

**1.** Delete first three lines of second paragraph on page 2 reading as follows:

> Whenever Contractor shall be, and declared by Owner to be in default under the Contract, the Owner having performed Owner's obligations thereunder, the Surety may promptly remedy the default, or shall promptly

and substitute in lieu thereof the following:

> Whenever Contractor shall be, and declared by Owner to be in default under the Contract, the Surety may promptly remedy the default, or shall promptly

**2.** Delete last paragraph on page 2 reading as follows:

> No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner, named herein or the heirs, executors, administrators or successors of Owner.

and substitute in lieu thereof the following:

> No right of action shall accrue on this bond to or for the use of any person or corporation other than the Owner, its successors or assigns.

**(b) Payment Bond**

**1.** Delete first four lines of paragraph 3(a) on page 2 reading as follows:

> (a) Unless claimant shall have given written notice to any two of the following: The Principal, the Owner, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the . . .

and substitute in lieu thereof the following:

> (a) Unless claimant shall have given written notice to any two of the following: The Principal, the Owner, or the Surety above named stating with substantial accuracy the amount claimed and the name of the party to whom the . . .

**2.** Delete paragraph 3(c) on page 2.

**3.** Delete paragraph 4 on page 2.

# SECTION F

## SPECIAL CONDITIONS

F-01. The following are special conditions which apply to this project. These special conditions delete and replace any General and/or Supplementary Conditions relating to Final Cleaning Up Instructions, Shop Drawings, Delivery and Protection of Materials, Standards, Grades, Lines, Levels and Surveys, Protection, Temporary Utilities, Laboratory Tests, Temporary Office and Telephone, Operation and Maintenance, and Sanitation.

### F-02. FINAL CLEANING UP INSTRUCTIONS

At the completion of the job, the Contractor, in addition to general broom cleaning, shall:

a. Thoroughly clean, wash, and polish all glass surfaces.
b. Leave all work clean of dirt, rubbish, scrap material, paint spots, mastic, etc.
c. Clean and polish all hardware thoroughly.
d. Thoroughly clean all plumbing fixtures.
e. Thoroughly clean all tile work.

### F-03. SHOP DRAWINGS

The Contractor shall submit with such promptness as to cause no delay in the work four copies of all shop or setting drawings, brochures and schedules required for the work of the various trades. Five copies shall be submitted if of structural, plumbing, heating or electrical nature. The drawings submitted shall be marked with the name of the projects, numbered consecutively, and shall bear the stamp of approval of the Contractor as evidence that the drawings have been checked by the Contractor. Any drawings submitted without this stamp of approval will not be considered and will be returned to the Contractor for resubmission. The Architect's approval of such drawings, brochures or schedules shall not relieve the Contractor from responsibility for deviations from drawings or specifications, unless he has in writing called the Architect's attention to such deviations at the time of submission, nor shall it relieve him from responsibility for errors of any sort in shop drawings, brochures or schedules. If the Architect returns the shop drawings for correction, the Contractor shall make any corrections required by the Architect and resubmit as outlined above. The work shall not proceed until the Contractor has received two copies of the shop drawings stamped with Architect's approval. No work shall be fabricated by the Contractor, save at his own risk, until Architect's approval of the shop drawings is given.

### F-04. DELIVERY AND PROTECTION OF MATERIALS

All materials shall be delivered and stored on the job site with all the proper precautions for protection demanded by the nature of such material.

Examples:

Casework shall be crated and delivered under cover to the job site and stored inside the new building to protect it from elements of weather.

Cementious Materials shall be delivered in sealed containers and handled with care so that no container will break open. Store on job site and in enclosure with floor and roof to protect completely from rain or moisture.

## F-05. STANDARDS

Any material specified by reference to the number, symbol or title of a specific standard, such as a Commercial Standard, a Federal Specification, a Trade Association Standard, or other similar standard, shall comply with the requirements of the latest revision thereof and any amendment or supplement thereto in effect on the date of Invitation for Bids, except as limited to type, class or grade, or modified in such reference.

The standards referred to, except as modified in the specifications, shall have full force and effect as though printed in the specifications. These standards are not furnished to bidders for the reason that the manufacturers and trades involved are assumed to be familiar with their requirements. The Architect will furnish, upon request, information as to how copies of the standards referred to may be obtained.

## F-06. GRADES, LINES, LEVELS AND SURVEYS

Owner shall establish lot lines, restrictions and bench marks.

Contractor shall:
Establish and maintain all other grades, lines, levels, bench marks and be responsible for same.
Verify all lines, levels, grades and dimensions shown and report any errors or inconsistencies to Architect before starting work.
Provide and maintain well built batter boards.
Establish bench marks in at least two widely separated places.
As work progresses, establish bench marks at each floor level.
Lay out on forms or rough floor exact location of all partitions as a guide to all trades.

## F-07. PROTECTION

### Protection in General

Protect all trees from damage
Protect all streets, sidewalks, private roads, and walks.
Provide guards and covering necessary.

### Water Protection

Protect excavation, trenches, and buildings from rain, spring and ground water, back-up of drains and sewers.
Furnish pumps, equipment and enclosures to so protect.

### Temporary Drainage

Construct and maintain all temporary drainage necessary.
Furnish all labor and equipment to keep excavations free of water.

### Guard Lights

Provide and maintain guard lights at all barricades, railings, obstructions in streets, roads, or sidewalks and at all trenches or pits adjacent to public roads or walks.

## F-08. TEMPORARY UTILITIES

Have water meter installed and make necessary temporary connections.
Install temporary electrical services and meter.
Provide necessary temporary piping, faucets, valves, wiring, switches, outlets, etc., to carry services to the work. Remove temporary services on completion of contract. Contractor will pay costs of water and electrical current used.

## F-09. LABORATORY TESTS

Specified laboratory tests of materials and finished articles to be incorporated in the work shall be made by bureaus, laboratories or agencies approved by the Architect, and the reports of such tests shall be submitted to the Architect. The cost of testing shall be paid for by the Contractor.

## F-10. TEMPORARY OFFICE AND TELEPHONE

Provide and maintain at least one temporary office building until completion of contract.
Provide space for Contractor, principal sub-contractors, and Architect's representative.
Locate temporary office on building site at Contractor's option.
Maintain telephone service in temporary office for contract duration.
Telephone for use of Contractor, Architect and principal subcontractors.
Provide tool and material storage shacks as required.

## F-11. OPERATION AND MAINTENANCE

For all items of mechanical equipment or apparatus installed in the building requiring operation or maintenance by the Owner after completion of job, the Contractor shall furnish and deliver to the Owner's representative on the job, complete data as prepared by the manufacturer covering details of operation and maintenance.

## F-12. SANITATION

At least two temporary toilet facilities shall be provided on the site. The Contractor shall provide sufficient sanitary latrines for the use of all men engaged in the work. Contractor shall maintain these spaces in a sanitary condition satisfactory to the Architect; when no longer required, clean and restore to satisfactory condition.

***

# DIVISION 1

# EARTHWORK

## 1-A SCOPE

Materials: Earth.

Installations Specified In This Division: Excavation, backfilling, fill under concrete slabs, rough grading, finish grading, driveways.

Installations Specified In Other Divisions: Trench excavation and backfilling for plumbing, heating and electrical trades specified in Divisions 18, 19 and 21.

## 1-B INCIDENTAL

Refer to the A.I.A. General Conditions and the Supplements.

1. Sub Surface Soil Data: See Division 2 for soil test boring data.

2. Added or Omitted Earth Excavation: Architect may order additional excavation necessary. Architect may omit portions of excavations called for if necessary. Value of extra or omitted work shall be determined according to Article 15 and 16 of the General Conditions and Article 57 and 64 of the Supplements to the General Conditions.

3. Rock Excavation: If rock is encountered, suspend excavation and notify Architect.
   Rock shall be defined as boulders larger than one cubic yard and as material which cannot be removed with pick and shovel or a power spade. Shale, hardpan, stratified rock or rotten stone shall not be construed as being rock excavation. Value of rock excavation shall be determined according to Articles 15 and 16 of the General Conditions and Articles 57 and 64 of the Supplements to the General Conditions. Any rock removed prior to the approval of the Architect shall not be included in the cost of rock excavation.

4. Cleaning Up: See Article 44 of the General Conditions.

5. Specification Arrangement: See Article 50 in the Supplements to the General Conditions.

6. Excess Earth: Distribute all excess earth, free of rubbish or debris, on site as shown on the Drawings.

## 1-C MATERIALS

1. Earth
   Where used for backfilling and fill shall be free of rubbish, debris or topsoil.

2. Topsoil
   Where used for finish grading shall be free of rubbish, debris or other objectionable matter.

## 1-D INSTALLATIONS

### 1. Excavations

Clear areas covered by new building of all rubbish, brush and other objectionable matter.
Remove all trees in excavated or filled areas unless instructed otherwise.
Excavate to elevations and dimensions, plus sufficient space to permit erection of forms, waterproofing, etc.
All clean-cut and true bottoms, level and sound.
No earth filling allowed under footings or foundations.
Fill excess cut under footings with concrete.
At no extra cost to Owner, carry footings and foundations to bottom of excavations erroneously carried too deep.
No claims allowed for extra cost due to Contractor's errors in grading and excavating.
Bottoms of trench and foundations shall be level.
Remove loose material before concrete footings are placed so they rest on undisturbed soil.
Footing trenches may be cut to the exact size if the nature of the soil is such that forms are not necessary.
Do not pour footings until Architect has examined and approved soil upon which footings will rest.
Protect excavation and building from water damage.
Grade or ditch where necessary to run surface water away from excavation and building walls.
Furnish, set and remove shoring required to restrain or confine the excavation.
If any active or inactive sewers, piping, etc., are encountered, notify Architect. Restore active sewers, piping, etc., if damaged.
Provide and place any additional material needed to establish finish grades shown on drawings.

### 2. Backfilling

Do no backfilling until footings, foundations or other work have been approved by the Architect.
Place no backfill against retaining walls until they have attained sufficient strength to withstand the load or as noted on the drawings.
Remove from excavations all forms, debris and other loose material before backfilling is started.
Backfill with earth free of rubbish, debris or topsoil.
Backfill in layers not exceeding 12" in thickness.
Each layer shall be rammed, puddled, and tamped.
Provide temporary bracing where needed.

### 3. Fill Under Concrete Slabs

Install all fill required under all floor slabs, including covered walks and open walks.
Fill in 6" layers and moist tamp each layer.
Obtain Architect's approval of fill under slabs before covering.

### 4. Rough Grading

Strip entire area to be graded of 8" of topsoil and pile separately.
Use topsoil for finish grading only.
Grade areas outside building to levels shown on elevations drawings and/or site plan, allowing for applying top soil.
Slope away from building.
Do not fill against trees except by Architect's direction.

### 5. Finish Grading

Finish grade with topsoil all areas, except driveways and area enclosed by driveway, to levels as shown on drawings.
Topsoil to be 8" thick.

### 6. Driveways

Rough grading for all driveways shall be formed as soon as conditions permit and traffic during construction of building shall be distributed as to cover the entire surfaces as much as possible. All surfaces which develop ruts or become baked and hardened, whether from traffic or otherwise, shall be scarified and ruts filled. The surface must be kept in such a condition that it will drain properly.
Do no finish grading for driveway and area enclosed by driveway.

***

## DIVISION 2

## SUB-SURFACE SOIL DATA

Listed below are test and auger borings records investigated and tabulated by Law-Barrow-Agee Laboratories of 136 Forest Avenue, N. E., Atlanta, Ga.

The location of the numbered borings are shown on the Drawings, sheet number A-1.

### Test Borings

Four test borings were made at the locations designated on the Drawings. Samples of each material encountered were secured by driving a 1-1/2 inch I.D. split spoon sampler into the soil with blows from a 140 pound hammer falling 30 inches. The soil's penetration resistance was measured by the number of hammer blows required to drive the sampler 1 foot. This is an indication of the soil's strength and density, and of its ability to support foundations.

Each soil sample was examined in the field, classified, and sealed in a glass container for transportation to the laboratory. The records of the soils encountered and their penetration resistances are shown on the accompanying charts.

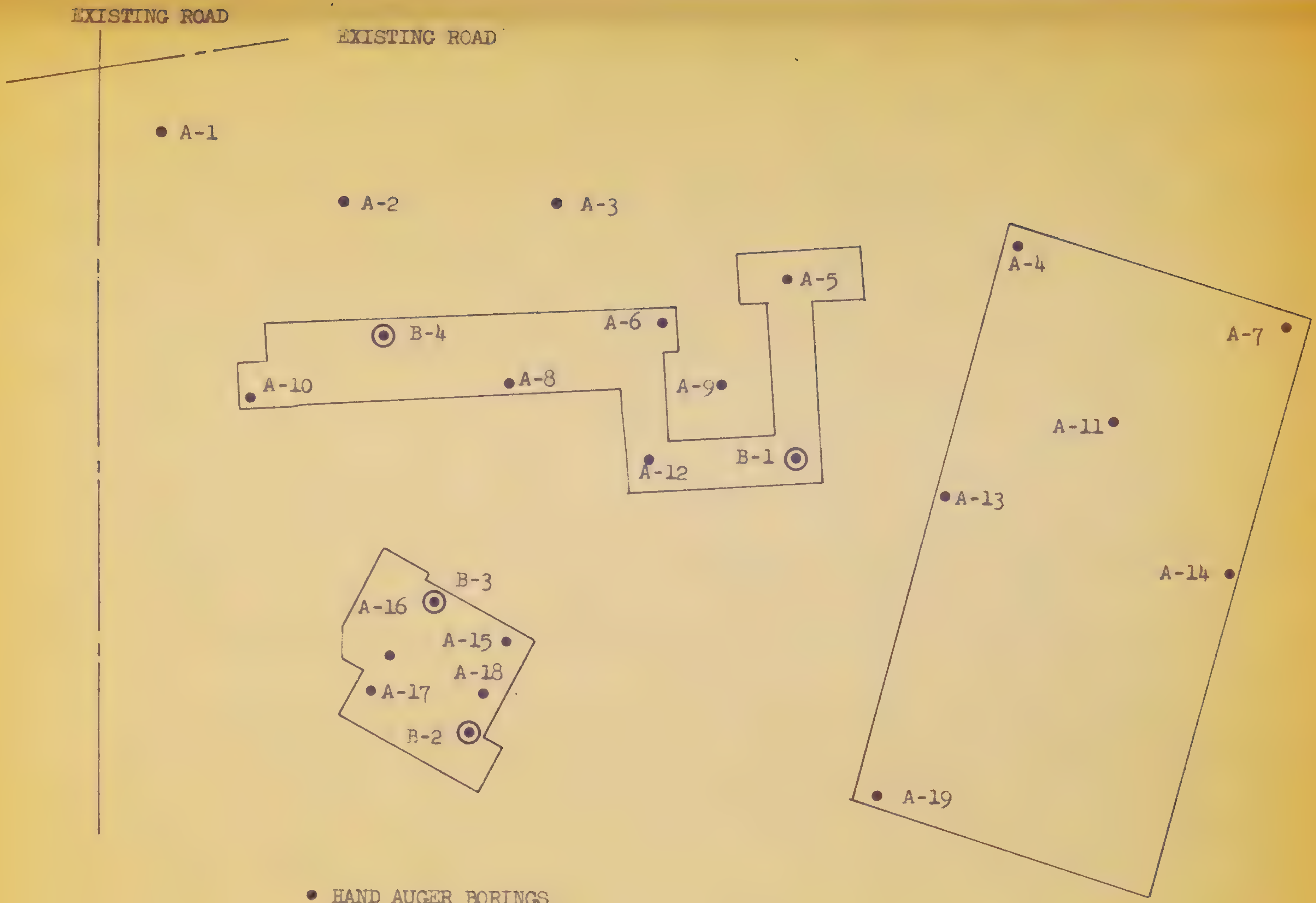
### Auger Borings

Nineteen auger borings were made at the locations designated on the Drawings. Their purpose was to determine if the soils found in the test borings are the same at other locations and also the depth to refusal -- materials so hard that drilling (and excavation) is impossible without special equipment. The soils encountered were identified from the auger cuttings.

### Soil Conditions at the Site

The soils at the site are the residual product of the weathering of the underlying granite-gneiss bed rock. The weathering is only partially complete and the resulting soils are firm micaceous silty sands that contain hard lenses of relatively sound unweathered rock. Based on the penetration resistances measured in the four test borings, the soils should support at least 6000 psf with safety.

The auger borings indicate that the soil conditions at other points are similar to those found in the test borings. The borings made in the areas of excavation indicate that no particular difficulties should be encountered. It is possible, however, that there may be lenses of hard, partially weathered rock between the borings that could prove difficult to excavate with scrapers. The only exception is in the vicinity of boring A-14. In this rock partially weathered rock outcrops at the surface. Excavation of a few feet should be possible with a power shovel or similar equipment. Deep excavation may require explosives.


EXISTING ROAD
EXISTING ROAD
A-1
A-2
A-3
A-4
A-5
A-6
A-7
B-4
A-10
A-8
A-9
A-11
A-12
B-1
A-13
B-3
A-16
A-15
A-14
A-18
A-17
B-2
A-19

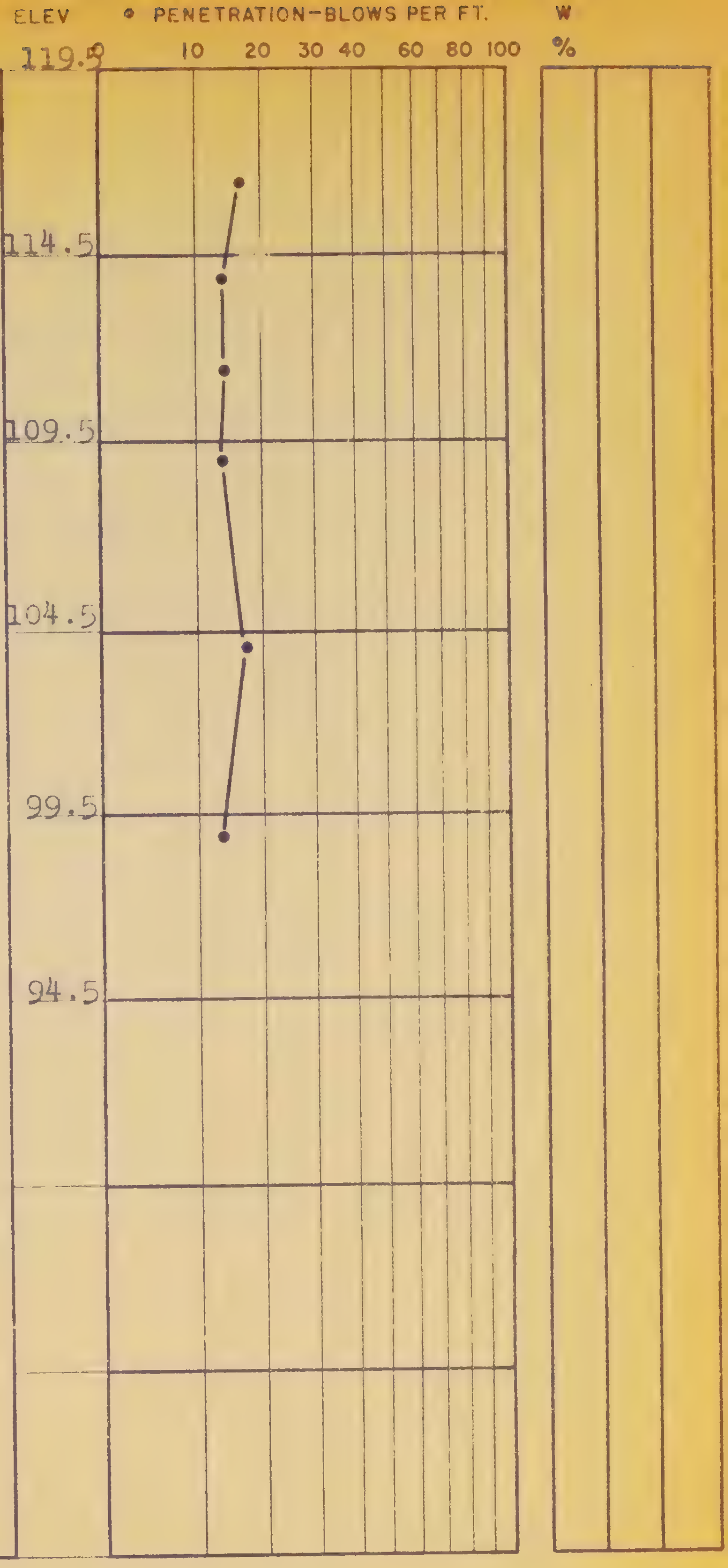
● HAND AUGER BORINGS

⦿ SOIL TEST BORINGS

APPROX. SCALE: 1" = 100'

ATHENS HIGH & INDUSTRIAL SCHOOL
ATHENS, GEORGIA
BORING PLAN
LBA LABORATORIES, INC.
ATLANTA, GEORGIA

| DEPTH FT. | DESCRIPTION |
|---|---|
| 0 | |
| 1 | LOOSE BROWN TOPSOIL |
| | FIRM RED CLAYEY MICACEOUS FINE TO COARSE SAND |
| 13 | FIRM RED-WHITE SILTY MICACEOUS FINE TO COARSE SAND |
| 20 | BORING TERMINATED |



NO GROUND WATER

*PENETRATION IS NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.5 IN. SAMPLER 1 FT.*

▬ *UNDISTURBED SAMPLE*

*W WATER CONTENT*

|50|% *ROCK CORE RECOVERY*

≡ *WATER TABLE*

## TEST BORING RECORD

BORING NO. B-1

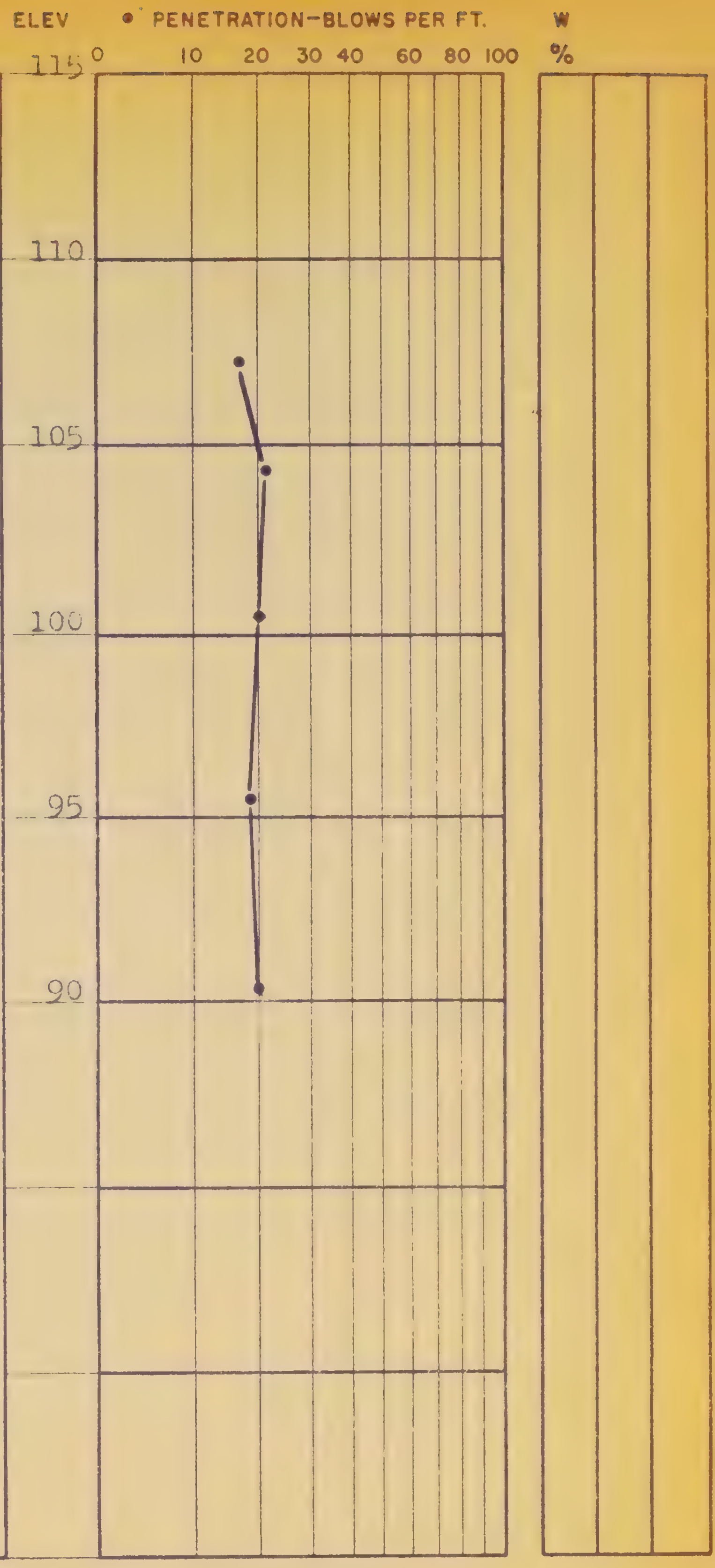
JOB NO. 599

LBA LABORATORIES INC.

2-3

DEPTH FT. | DESCRIPTION | 115

| DEPTH FT. | DESCRIPTION |
|---|---|
| 0 | * |
| 0.5 | FIRM BROWN-RED SILTY MICACEOUS FINE TO COARSE SAND |
| 20 | BORING TERMINATED |



* LOOSE BROWN TOPSOIL

NO GROUND WATER

*PENETRATION IS NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.5 IN. SAMPLER 1 FT.*

*▬ UNDISTURBED SAMPLE*

*W WATER CONTENT*

*|50|% ROCK CORE RECOVERY*

*WATER TABLE*

# TEST BORING RECORD

BORING NO. B-2

JOB NO. 599

LBA LABORATORIES INC.

DEPTH FT. | DESCRIPTION

0

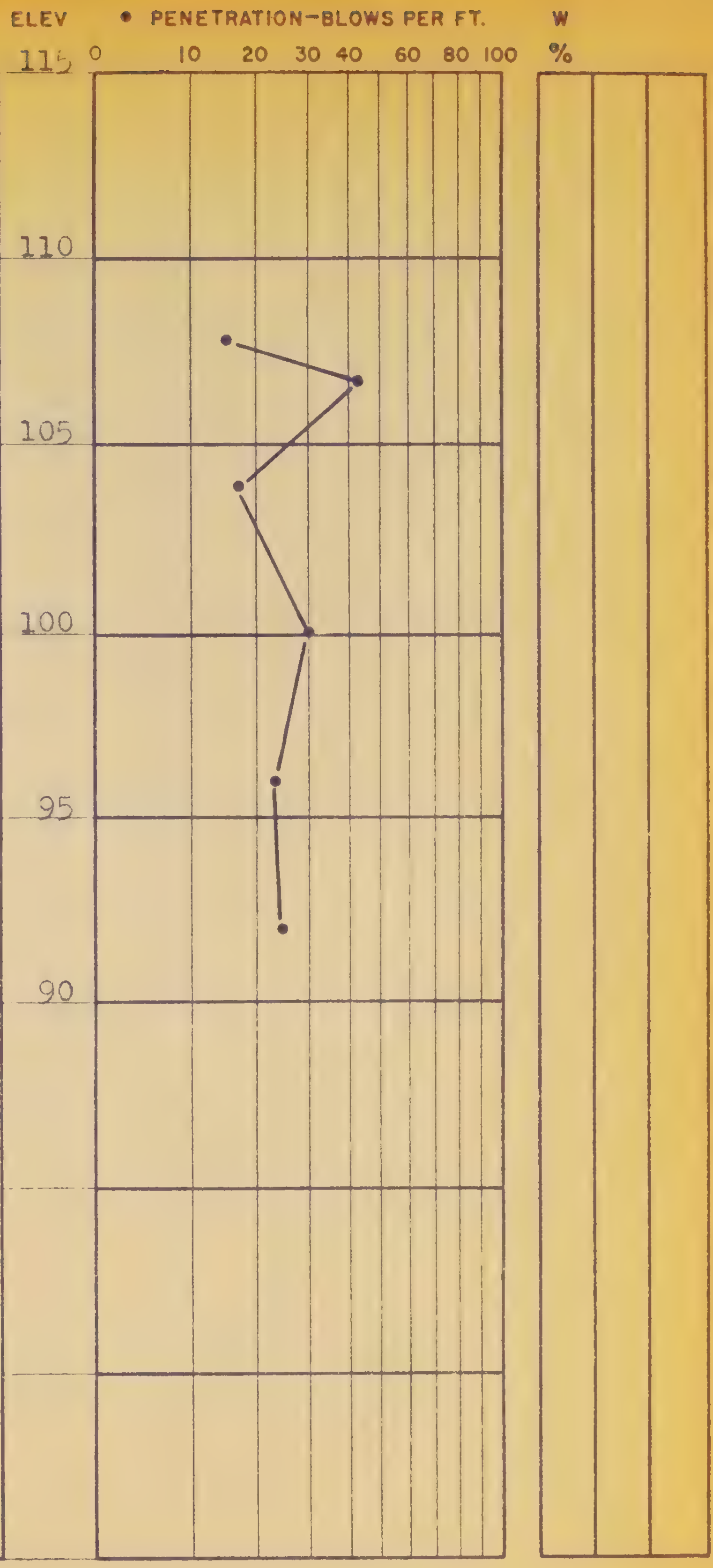
LOOSE TO FIRM BROWN TO RED CLAYEY MICACEOUS FINE TO COARSE SAND

11

FIRM RED SILTY MICACEOUS FINE TO COARSE SAND WITH SOME PARTIALLY DECOMPOSED ROCK AND KAOLIN

20

BORING TERMINATED



NO GROUND WATER

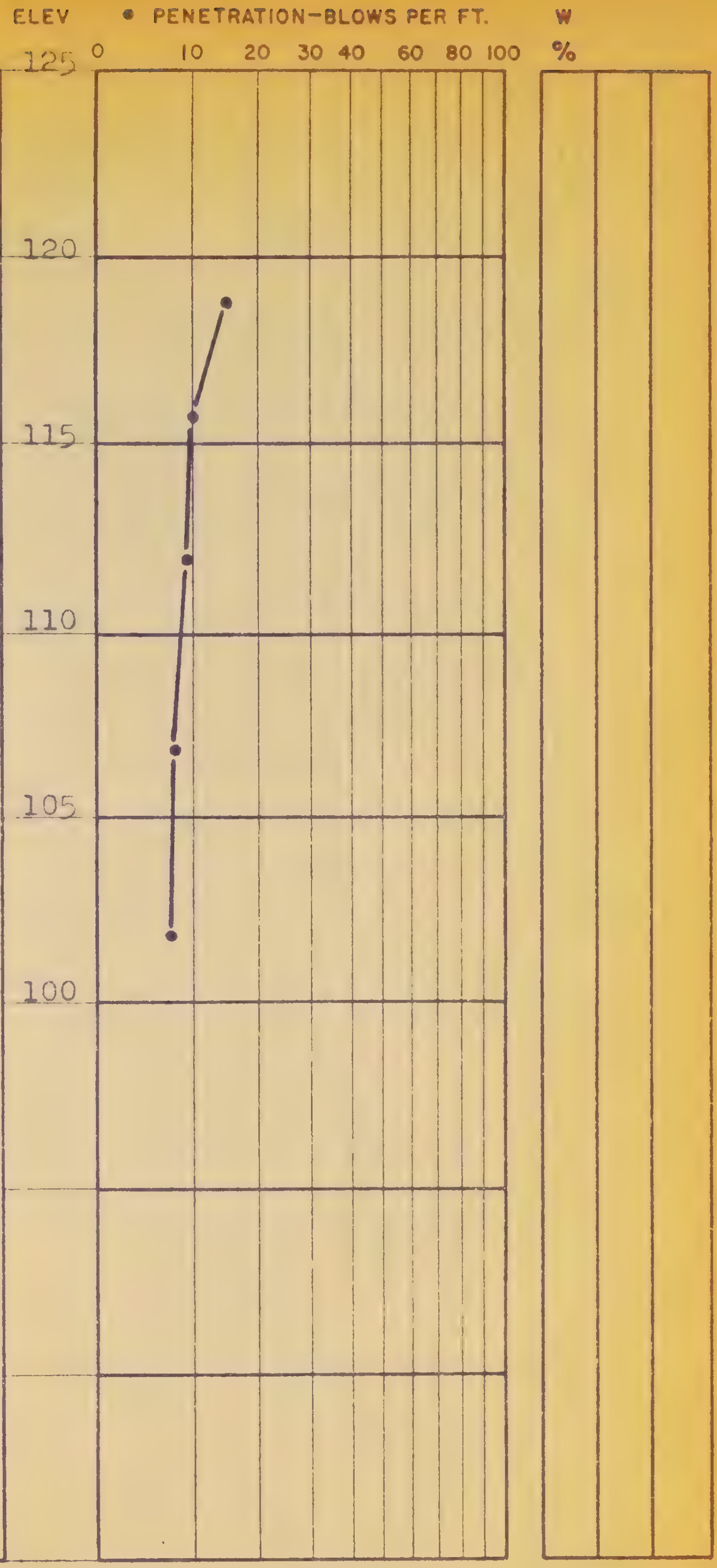
*PENETRATION IS NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.5 IN. SAMPLER 1 FT.*

▬ *UNDISTURBED SAMPLE* | *W WATER CONTENT*
|50|% *ROCK CORE RECOVERY* | ⩧ *WATER TABLE*

## TEST BORING RECORD

BORING NO. B-3
JOB NO. 599
LBA LABORATORIES INC.

| DEPTH FT. | DESCRIPTION 125 |
|---|---|
| 0 | LOOSE BROWN CLAYEY MEDIUM SAND |
| 2 | FIRM TO LOOSE RED-BROWN SILTY MICACEOUS FINE TO COARSE SAND WITH GRAVEL SIZE QUARTZ PARTICLES AND KAOLIN |
| 17 | LOOSE BROWN SILTY MICACEOUS FINE SAND |
| 20 | BORING TERMINATED |



NO GROUND WATER

*PENETRATION IS NUMBER OF BLOWS OF 140 LB HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.5 IN. SAMPLER 1 FT.*

| | |
|---|---|
| ▬ *UNDISTURBED SAMPLE* | *W WATER CONTENT* |
| *\|50\|% ROCK CORE RECOVERY* | *≡ WATER TABLE* |

## TEST BORING RECORD

BORING NO. B-4
JOB NO. 599
LBA LABORATORIES INC.

2-6

# RECORD OF AUGER BORINGS

## ATHENS HIGH SCHOOL

## ATHENS, GEORGIA

| Boring No. | Depth From | Depth To | Elevation From | Elevation To | Soil Description |
|---|---|---|---|---|---|
| A-1 | 0' | 1' | 123.7 | 122.7 | Loose black topsoil |
| | 1' | 3' | 122.7 | 120.7 | Firm red micaceous clayey fine to medium sand |
| | 3' | 6' | 120.7 | 117.7 | Firm red micaceous silty fine to medium sand |
| | 6' | -- | 117.7 | ----- | Boring Terminated |
| A-2 | 0' | 0.5' | 125 | 124.5 | Firm red micaceous clayey fine to coarse sand |
| | 0.5' | 8' | 124.5 | 117 | Firm to dense brown micaceous silty fine sand with gravel size quartz particles |
| | 8' | -- | 117 | ----- | Boring Terminated |
| A-3 | 0' | 1.5' | 121 | 119.5 | Loose brown micaceous clayey fine sand |
| | 1.5' | 4' | 119.5 | 117 | Firm brown micaceous silty fine sand |
| | 4' | -- | 117 | ----- | Boring Terminated |
| A-4 | 0' | 5' | 115 | 110 | Firm red micaceous clayey fine to medium sand |
| | 5' | -- | 110 | ----- | Boring Terminated |
| A-5 | 0' | 1' | 120 | 119 | Loose black topsoil |
| | 1' | 3' | 119 | 117 | Loose red clayey micaceous fine sand |
| | 3' | 20' | 117 | 100 | Firm to loose brown micaceous silty fine sand with partially decomposed rock and kaolin |
| | 20' | -- | 100 | ----- | Boring Terminated |
| A-6 | 0' | 2' | 122 | 120 | Loose black topsoil |
| | 2' | 4' | 120 | 118 | Firm red clayey fine to coarse sand |
| | 4' | 10' | 118 | 112 | Firm red silty micaceous fine to coarse sand and gravel size quartz particles |
| | 10' | -- | 112 | ----- | Boring Terminated |
| A-7 | 0' | 0.8' | 115 | 114.2 | Firm red micaceous clayey fine to medium sand |
| | 0.8' | 5.0' | 114.2 | 110 | Firm brown micaceous silty fine to medium sand |
| | 5.0' | -- | 110 | ----- | Boring Terminated. |

| Boring | Depth | | Elevation | | |
|---|---|---|---|---|---|
| No. | From | To | From | To | Soil Description |
| A-8 | 0' | 1' | 122 | 121 | Loose black topsoil |
| | 1' | 4' | 121 | 118 | Loose red clayey micaceous fine to coarse sand |
| | 4' | 10' | 118 | 112 | Loose brown silty micaceous fine to coarse sand |
| | 10' | -- | 112 | ----- | Boring Terminated |
| A-9 | 0' | 1' | 121 | 120 | Loose black topsoil |
| | 1' | 4' | 120 | 117 | Firm red clayey fine to coarse sand |
| | 4' | 10' | 117 | 111 | Firm red silty micaceous fine to coarse sand |
| | 10' | -- | 111 | ----- | Boring Terminated |
| A-10 | 0' | 1.5' | 120 | 118.5 | Loose black topsoil |
| | 1.5' | 3' | 118.5 | 117 | Firm red clayey fine to coarse sand |
| | 3' | 10' | 117 | 110 | Firm red silty micaceous fine and coarse sand |
| | 10' | 20' | 110 | 100 | Loose brown silty micaceous fine sand with some kaolin and partially decomposed rock |
| | 20' | -- | 100 | ----- | Boring Terminated |
| A-11 | 0' | 1.5' | 115 | 113.5 | Firm red micaceous clayey fine and medium sand |
| | 1.5' | 4' | 113.5 | 111 | Firm red micaceous silty fine to medium sand |
| | 4' | -- | 111 | ----- | Boring Terminated |
| A-12 | 0' | 1' | 121 | 120 | Loose black topsoil |
| | 1' | 2.5' | 120 | 118.5 | Firm red clayey micaceous fine to coarse sand |
| | 2.5' | 20' | 118.5 | 101 | Loose brown to red silty micaceous fine sand with some kaolin and partially decomposed rock |
| | 20' | -- | 101 | ----- | Boring Terminated |
| A-13 | 0' | 5' | 114.5 | 109.5 | Firm red micaceous clayey fine and medium sand |
| | 5' | -- | 109.5 | ----- | Boring Terminated |
| A-14 | 0' | 1.5' | 114 | 112.5 | Firm red micaceous clayey fine and medium sand |
| | 1.5' | -- | 112.5 | ----- | Refusal - Rock Outcrop |
| A-15 | 0' | 0.5' | 113 | 112.5 | Loose black topsoil |
| | 0.5' | 2.5' | 112.5 | 110.5 | Firm red micaceous clayey fine sand |
| | 2.5' | 10' | 110.5 | 103 | Firm red to brown micaceous silty fine sand |
| | 10' | -- | 103 | ----- | Boring Terminated |

| Boring No. | Depth From | To | Elevation From | To | Soil Description |
|---|---|---|---|---|---|
| A-16 | 0' | 0.5' | 110 | 109.5 | Loose black topsoil |
| | 0.5' | 2.5' | 109.5 | 107.5 | Firm red micaceous clayey medium sand |
| | 2.5' | 10' | 107.5 | 100 | Firm red to brown micaceous silty fine sand and partially decomposed rock |
| | 10' | -- | 100 | ----- | Boring Terminated |
| A-17 | 0' | 1' | 108 | 107 | Loose brown micaceous clayey fine to coarse sand |
| | 1' | 3' | 107 | 105 | Firm red micaceous clayey medium sand |
| | 3' | 10' | 105 | 98 | Firm brown micaceous silty medium sand |
| | 10' | -- | 98 | ----- | Boring Terminated |
| A-18 | 0' | 0.5' | 112 | 111.5 | Loose black topsoil |
| | 0.5' | 3' | 111.5 | 109 | Firm red clayey micaceous fine sand |
| | 3' | 10' | 109 | 102 | Firm red to brown silty micaceous fine sand |
| | 10' | -- | 102 | --- | Boring Terminated |
| A-19 | 0' | 1' | 115 | 114 | Loose black topsoil |
| | 1' | 3.5' | 114 | 111.5 | Firm red micaceous clayey medium sand |
| | 3.5' | 5' | 111.5 | 110 | Firm brown micaceous silty medium sand |
| | 5' | -- | 110 | ----- | Boring Terminated |

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# DIVISION 3

## CONCRETE

### 3-A SCOPE

Materials: Cement, Concrete Aggregates, Water, Metal Reinforcement, Class of Concrete.

Installations: Proportioning Concrete, Batching and Mixing, Conveying, Preparation for Placing, Placing, Curing and Protection, Formwork, Reinforcement, Concrete Finishes, Construction Joints and Expansion Joints, Openings and Sleeves.

### 3-B INCIDENTAL

Refer to A.I.A. General Conditions and the Supplements.

1. Cooperation: See Article 47 of Supplements to General Conditions.

2. Cutting and Patching: See Article 43 of the General Conditions.

3. Storage of Materials: For delivery and protection of materials see Article 72 in Supplements to General Conditions.

4. Architect's Approval: See Article 53 of Supplements to General Conditions.

5. Shop Drawings: Submit for reinforcing steel. See Article 71 of Supplements to General Conditions.

6. Cleaning Up: See Article 44 of the General Conditions.

7. Specification Arrangement: See Article 50 of Supplements to General Conditions.

### 3-C MATERIALS

1. Cement
   The cement used shall be Standard Portland Cement or High Early Strength Portland Cement of American Manufacture conforming to the "Standard Specifications for Portland Cement" A.S.T.M. Serial Designation C-150-46, Type I or Type III respectively. Only one brand of commercial Portland Cement shall be used in the exposed concrete of the structure. Where Type III cement is used the bags shall be clearly marked and designated. Cement reclaimed by cleaning bags or from leaking containers shall not be used.

2. Concrete Aggregates
   Concrete aggregates shall conform to the "Standard Specifications for Concrete Aggregates" A.S.T.M. Serial Designation C-33-46. Where aggregates conforming to these specifications are not obtainable,

aggregates that have been shown by test or actual service to produce concrete of the required strength, durability, watertightness, fire-resistance and wearing qualitites may be used, where authorized in writing by the Architect. The maximum size of the aggregate shall be not larger than one-fifth of the narrowest dimension between forms of the member for which the concrete is to be used, nor larger than three-fourths of the minimum clear spacing between reinforcing bars.

3. Water
   Water used in mixing concrete shall be clean and free from deleterious amount of acids, alkalies or organic materials.

4. Metal Reinforcement
   a. Metal reinforcement shall be deformed type bars manufactured from new billet steel conforming to the requirements of "Standard Specifications for Billet-Steel Bars for Concrete Reinforcement" A.S.T.M. Serial Designation A-15-39 intermediate grade.
   b. Welded wire fabric or cold-drawn wire for concrete reinforcement shall conform to the requirements of the "Standard Specifications for Cold-Drawn Steel Wire for Concrete Reinforcement" A.S.T.M. Serial Designation A-82-34 or "Standard Specifications for Welded Steel Wire Fabric for Concrete Reinforcement" A.S.T.M. Serial Designation A-185-37.

5. Class of Concrete
   All concrete shall be class B, 2500 lbs. per sq. in. at 28 day test.

## 3-D INSTALLATION

1. Proportioning Concrete
   a. General: The working stresses for the design of this structure are based on the specified minimum ultimate 28 day compressive strength of the concrete, or on the specified minimum ultimate compressive strength at the earlier age at which the concrete may be expected to receive its full load.
   b. The proportions of aggregate to cement for any concrete shall be such as to produce a mixture of which will work readily into the corners and angles of the forms and around reinforcement with the method of placing employed on the work, but without permitting the materials to segregate or excess free water to collect on the surface. The combined aggregates shall be of such composition of sizes that when separated on the No. 4 standard sieve the weight passing the sieve (fine aggregate) shall not be less than 30 percent nor greater than 50 percent of the total unless otherwise required by the Architect.
   c. The determination of the proportions of cement, aggregate and water to attain the required strengths shall be made as follows. The water content per sack of cement shall not exceed the values in the following table, nor shall the bags of cement per cu. yd. of concrete be less than shown in the table.

## Concrete Mixture

| Class Concrete | Maximum Water Content U. S. Gal. per 94 lb. sack of cement | Minimum Compressive strength @ 28 days, lb. per sq. in. | Bags of Cement (minimum) | Maximum Slump inches |
|---|---|---|---|---|
| B | $7\frac{1}{4}$ | 2,500 | $5\frac{1}{2}$ | 4 |

NOTE: In interpreting this table, surface water contained in the aggregate must be included as part of the mixing water in computing the water content.

d. Tests
  (1) During the progress of the work, compression tests shall be made by a testing engineer approved by the Architect in accordance with the "Standard Method of Making and Storing Compression Test Specimens of Concrete in the Field", A.S.T.M. Serial Designation C-31-44. Each test shall be made on two laboratory control cylinders and two field control cylinders.
  (2) Inspection at Plant: If contractor uses ready mixed concrete, he shall provide a competent inspector at the Ready Mix Plant to report batch weights, amount water, truck numbers and time of departure for all concrete supplied.
  (3) Not less than one test shall be made for each strength of concrete placed and not less than one test for each 50 cu. yd. of concrete placed.
  (4) The standard age test shall be 28 days, but 7 day tests may be used, provided that the relation between the 7 and 28 day strengths of concrete is established by test for the materials and proportions used.
  (5) In all cases where the average strength of the laboratory control cylinders shown by these tests for any portion of the structure falls below the minimum ultimate compressive strengths called for on the plans, the Architect shall have the right to order a change in the mix or in the water content for the remaining portion of the structure. In cases where the average strength of the cylinders cured on the job falls below the required strength, the Architect shall have the right to require the questionable portions removed and replaced with proper concrete.

e. Measurements: The methods of measuring concrete materials shall be such that the proportions can be accurately controlled and easily checked at any time during the work. Measurement of materials for Ready Mixed Concrete shall conform to the "Tentative Specifications for Ready Mixed Concrete", A.S.T.M. Serial Designation C-94-43T.

f. Corrective Measures: In the event that concrete appears on the job for use, wither Ready Mixed or Job Mixed, and a slump test made by the Architect indicates that the concrete is too wet for the required strength, this concrete shall be rejected until the

contractor can provide concrete in strict accordance with the specifications. All rejected concrete shall be hauled away from the site and disposed of at the contractor's expense.

2. Batching and Mixing
   a. The contractor shall provide all necessary equipment to accurately determine and control the actual amounts of materials entering into the concrete mix. Individual ingredients shall be measured separately for each batch. The accuracy of all weighing devices shall be such that successive quantities can be measured to within one percent (1%) of the desired amount.
   b. All concrete shall be mixed in a power-operated batch mixer unless otherwise approved in writing by the Architect. For mixers having a capacity of one cu. yd. or less, the mixing shall continue for one full minute after all materials are in the mixer. For larger mixers, the mixing time shall be increased 15 seconds for each additional half-cubic yard capacity or fraction thereof.
   c. The contents of the mixer shall be completely discharged before each new batch is loaded. The use of retempered concrete will not be permitted.
   d. Ready mixed concrete shall be mixed and delivered in accordance with the requirements set forth in the "Tentative Specifications for Ready Mixed Concrete", A.S.T.M. Serial Designation C-94-43T.

3. Conveying
   a. Concrete shall be conveyed from the mixer to the place of final deposit by methods which will prevent the separation or loss of the materials.
   b. Equipment for shooting or other methods of conveying concrete shall be of such size and design as to insure a practically continuous flow of concrete at the delivery and without separation or degradation of the materials.

4. Preparation for Placing
   a. Earth: Concrete shall not be placed on earth until the fill or excavation has been prepared as set forth under the applicable sections of the specification for that work.
   b. Before placing any concrete, all pipes or embedded items shall be in place and shall have received the required tests and the installations approved by the Architect.
   c. Concrete shall not be placed in forms until the formwork has been approved by the Architect and all debris, wood shavings, and other matter have been removed from the forms, and the reinforcing steel is in the proper condition for the placement of concrete.

5. Placing
   a. Concrete shall be deposited as nearly as practicable in its final position to avoid segregation due to rehandling or flowing. No concrete that has partially hardened or been contaminated by foreign material shall be deposited on the work, nor shall retempered concrete be used. In no case shall concrete be used when the elapsed time after the addition of water and cement to the batch exceed 45 minutes.

b. When concreting is once started, it shall be carried on as a continuous operation until the placing of the panel or section is completed. The top surface shall be finished to a true plane. When construction joints are necessary, they shall be made in accordance with the applicable sections of the specification for construction joints.

c. All concrete shall be thoroughly compacted by suitable means during the operation of placing, and shall be thoroughly worked around reinforcement, embedded fixtures and into the corners of the forms.

d. Where conditions make compacting difficult, or where the reinforcement is congested, batches of mortar containing the same proportion of cement to sand as used in the concrete shall first be deposited in the forms. The concreting shall be carried on at such a rate that the concrete is at all times plastic and flows readily into the spaces between the bars.

e. Cold Weather Precautions:

(1) Adequate equipment shall be provided for heating the concrete materials and protecting the concrete during freezing or near-freezing weather. No frozen materials or materials containing ice shall be used.

(2) All concrete materials and all reinforcement, forms, fillers and ground with which the concrete is to come in contact, shall be free from frost. Whenever the temperature of the surrounding air is below 40° F, all concrete placed in the forms shall have a temperature of between 70° F and 80° F, and adequate means shall be provided for maintaining a temperature of not less than 70° F, for 3 days or 50° F for 5 days except when high early strength concrete is used the temperature shall be maintained at not less than 70° F, for 2 days or 50° F, for 3 days, or for as much more time as is necessary to insure proper curing of the concrete. No dependence shall be placed on salt or other chemicals for the prevention of freezing.

### 6. Curing and Protection

a. All freshly placed concrete shall be adequately protected from damage or injury due to water, falling objects, persons, or anything that may mar or injure the finish surface of the concrete. Any surfaces that are damaged due to lack of protective measures shall be removed and replaced with fresh concrete at the expense of the contractor. Fresh concrete placed in the vicinity of public traffic shall be adequately protected with barriers, lights, and any other protective measures necessary.

b. Concrete shall be maintained in the moist condition for at least five (5) days after placement except that for high-early strength concrete moist curing shall be provided for at least the first two days.

c. Before traffic is allowed on any finished slab, it shall be covered by one layer of Sisal Kraft or approved similar waterproof paper, lapped at least four inches, with lap continuously filled with waterproof cement. In case of damage or injury to

this paper, it shall be replaced immediately. It is the intent of this specification that after a concrete floor is finished and approved and cured that no damage whatsoever shall occur to it until the completion of construction by any construction methods, materials, or personnel used by the contractor or from other sources that are within the scope of the specifications and the contract.

7. Formwork
   a. Design of Forms: Forms shall conform to the shape, lines and dimensions of the members as called for on the plans, and shall be substantial and sufficiently tight to prevent leakage of mortar. They shall be properly braced or tied together so as to maintain position and shape. The Architect shall have the right to reject any forms that do not appear to him to be sufficient as to strength, alignment or workmanship. Should misalignment of forms or screeds or displacement of reinforcing occur during concrete placing, corrective measures shall be immediately made, to the extent if necessary that placing operations shall be stopped and concrete removed from within forms. The corrective measures shall be such as to insure acceptable lines and surfaces to required dimensions and cross-section.
   b. Removal of Forms: Forms shall be removed in such a manner as to insure the complete safety of the structure. In no case shall the supporting forms be removed until the members have acquired sufficient strength to support safely their weight and the load thereon. The strength shall be determined by job cured cylinders.
   c. Forms may be constructed of wood or metal. Metal forms if used shall be approved by the Architect and must be of a type that will produce surfaces at least equal to those produced by wood forms. Wood forms for unexposed concrete surfaces shall be lumber of No. 2 common grade or better. For exposed surfaces, forms shall be constructed from dressed and matched boards of uniform thickness and width not exceeding 6 inches.
   d. Wood or metal forms shall be so constructed that they can be removed readily without hammering or prying against the concrete. Lumber once used in forms shall have nails withdrawn and the surface to be in contact with the concrete carefully cleaned before reuse. Faces of wood forms in contact with the concrete, unless lined, shall be oiled, or (except in freezing weather) thoroughly wetted with water in advance of pouring.
   e. Form ties, if used, shall be of a type approved by the Architect. Form oil, if used, shall be non-staining mineral oil.

8. Reinforcement
   a. Metal reinforcement, at the time concrete is placed, shall be free from rust scale, or other coatings that will destroy or reduce the bond. Bends for bars shall be made around a pin having a diameter not less than six times the minimum thickness of the bar. Except that for bars larger than 1 inch, the pin shall be not less than eight times the minimum thickness of the bar. All bars shall be bent cold.

b. Metal reinforcement shall be accurately placed in accordance with the plans and shall be adequately secured in position by concrete or metal chairs and spacers. Splices shall provide sufficient lap to transfer the stress between bars by bond and shear.

c. Metal reinforcement shall be protected by concrete cover by the thickness of concrete indicated on the drawings. Where not otherwise shown the thickness of concrete over the reinforcement shall be as follows:

   (1) Where concrete is deposited against ground without the use of forms, not less than 3 inches, all other cases, not less than $1\frac{1}{2}$ inches.

d. Exposed reinforcement bars intended for bonding with future extensions shall be protected from corrosion by concrete or other adequate covering.

e. The reinforcing steel shall be fabricated to the shapes and dimensions indicated on the drawings and shall be placed with reasonable tolerances where indicated on the plans or called for in the specifications. The completed placement of reinforcement shall be approved by the Architect before pouring of concrete. Should there be any substantial delay in the work, reinforcement previously placed shall be reinspected and cleaned if necessary before concrete placement is resumed.

9. Concrete Finishes

a. Exposed concrete surfaces shall be finished as follows:
   (1) Float Finish: All floors where quarry tile setting bed is to be placed.
   (2) Trowel Finish: All floors in the building and passageways, except as indicated in (1) above.

b. Trowel Finish: Float finish shall be followed by steel troweling after the concrete has hardened sufficiently to prevent excess fine material from working to the surface. The finish shall be brought to a smooth surface free from defects and blemishes. No dry cement or mixture of dry cement and sand shall be sprinkled directly on the surface of the wearing course to absorb moisture or to stiffen the mix. After the concrete has been further hardened additional troweling may be required. This shall be done as directed by the Architect.

10. Construction Joints and Expansion Joints

a. Construction joints not indicated on the plans shall be made only upon written approval from the Architect. Where a construction is to be made, the surface of the concrete shall be thoroughly cleaned and all laitance removed. In addition to the foregoing, vertical joints shall be thoroughly wetted but not saturated, and slushed with a coat of neat cement grout immediately before the placing of new concrete.

b. Expansion joints shall be made by the use of three layers of 15# asphalt saturated felt as indicated on the drawings.

11. Openings and Sleeves

Openings shall be left in the concrete where required and directed by other trades. Plumbing, Heating and Electrical trades shall furnish and set all their required sleeves and/or embedded items before concrete placement begins, and the contractor shall be responsible for the maintenance of their correct position during placing and finishing of the concrete.

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# DIVISION 4

## MASONRY

### 4-A SCOPE

Materials: Jumbo Brick, Structural Glazed Facing Tile, Concrete Masonry Units, Flue Lining, Mortar.

Installations: Jumbo Brick, Common Brick, Structural Glazed Facing Tile, Concrete Masonry Units, Flue Lining.

Masonry metal ties, masonry wire reinforcing, masonry anchor rods, loose lintels, miscellaneous anchoring devices, access panels, boiler room louver-Refer to Division 6.

Metal weather stops, metal cap flashing -- Refer to Division 9.

Frame for Kitchen Storage Fan, View Panels -- Refer to Division 10.

### 4-B INCIDENTAL

Refer to the A.I.A. General Conditions and the Supplements.

1. Alternate: See Division 23 - Alternate #7.

2. Cooperation: See Article 47, Supplement to the General Conditions.

3. Cutting and Patching: See Article 43 of the General Conditions.

4. Manufacturers, Trade Names, Catalogue Numbers: See Article 53 of the Supplements to the General Conditions.

5. Cleaning Up: See Article 44 of the General Conditions.

6. Shop Drawings: See Article 71 in the Supplements to the General Conditions.

7. Specification Arrangement: See Article 50 in the Supplements to the General Conditions.

8. Samples: Submit samples of Jumbo Brick, Glazed Structural Facing Tile, Concrete Masonry Units and sand.

   Lay up a panel of Jumbo Brick and a panel of Concrete Masonry Units in sections 3'-0" x 4'-0" on the job for approval by Architect. The approved panels shall be representative of the materials and labor on the finish masonry walls. Approved panels shall remain on the job until the completion of all Jumbo Brick and Concrete Masonry work.

9. Delivery and Protection of Materials: See Article 72 in Supplements to the General Conditions.

   All masonry units shall be stacked on plank platforms in dry location.

   During freezing weather all masonry units shall be completely covered with tarpaulins or other suitable material. Structural Glazed Facing

Tile shall be covered at all times. Concrete Masonry Units which have been wetted by rain shall not be used in construction until moisture content conforms with A.S.T.M. Designation C129.

Masonry Wire Reinforcement delivered to the site and not immediately used in construction shall be placed on supports at least 18" above the ground.

Structural Glazed Facing Tile shall be delivered packed in suitable cardborad or paper cartons or trays to protect them from chipping. Utmost care shall be taken in unloading and stacking facing tile. These units shall not be removed from the cartons until they are on the scaffold or at the position where needed.

10. Protection of the Work: During erection all masonry walls shall be kept dry by covering with canvas or waterproof paper. Partially completed walls not being worked on shall be similarily protected at all times. Covering shall overhang at least 2 feet on each side of the wall.

## 4-C MATERIALS

1. Jumbo Brick: Shall conform to the requirements of the specifications for Jumbo Brick by Southern Brick and Tile Manufacturers Association, Atlanta, Ga., Grade MW.

Manufacturer: Merry Brothers Brick and Tile Co., Augusta, Ga. Brick shall be "Full Range" of color with Brush Texture.

Nominal sizes shall be 4" x 4" x 12", 4" x 8" x 12", 4" x 6" x 12" with closure units as required, and 4" x 4" x 8" Economy Brick.

2. Structural Glazed Facing Tile: Shall conform to Specification and Grading Rules of Facing Tile Institute, Washington 6, D. C.

Manufacturer: Arketex Ceramic Corporation, Natco Corporation, Stark Ceramics, Inc. All units shall be "Select Quality".

The nominal face sizes of Structural Glazed Facing Tile and Fittings shall be 5 1/3" x 12" in accordance with the 6T series, in nominal thickness as shown on the drawings. Shapes shown in the Facing Tile Institute Catalog shall be furnished as required. In general, all external corners, jambs and top of soap wainscots shall be bull-nosed. Miters shall be furnished as required. All internal corners shall be square. Glazing shall be one or two sides as required.

The base course shall be straight, same as field tile.

Provide "S U" - unselected, unscored, unglazed face on counter side of serving counter partition only.

Field tile color shall be "Clear Glazed", same as "Arketex shade S-102". Base course color shall be same as "Arketex Trim Color" - color to be selected by Architect.

3. Concrete Masonry Units: Shall be "Lightweight" and shall conform to latest A.S.T.M. Designation C90 Grade B with one of the three following

aggregates: cinder, Red Rock or "Shalite".

Nominal sizes of units shall be 4" x 8" x 16", 6" x 8" x 16" and 4" x 8" x 8".
All 16" long units shall have 3 coves.
Special Ventilator Block as shown on the drawings shall be cut from a standard 4" x 8" x 16" unit.
Texture as per approved sample.

4. Flue Lining: Shall be 15" inside diameter "Natco" Round in 2'-0" lengths by Natco Corporation.

5. Mortar: Shall conform to the Proportion Specifications - Type "B" mortar in tentative specifications for Mortar for Unit Masonry, A.S.T.M. Designation C270, using Type I Portland Cement, and Type S special hydrated lime.

In Mortar used for Structural Glazed Facing Tile, all aggregate used must pass through #16 sieve and a white stainless cement approved by the Architect, shall be used. Otherside, this mortar shall be same as specified above.

## 4-D INSTALLATIONS

1. Jumbo Brick: Consult coursing details on the drawings. All high absorption brick and all brick laid in hot weather shall be wetted.
The units shall be wetted from 3 to 4 hours before they are used and the method should be such as to insure that each unit is uniformily wetted.
All units shall be free from water adhering to their surfaces when they are placed in the wall.
Course brickwork with top of concrete slab as shown on the drawings.
Lay brick plumb and true to lines.
Lay outside face of brick to a line; inside face shall take variation in brick if wall is made up of single units. Lay up inside face of brick to a line also if wall is made up of double units. Exercise care in laying interior face of brick where it constitutes a finish surface. Lay brushed face of brick to the outside. Lay out courses with a story rod and space accurately.
Vertical dimensions are laid out to 4" coursing and horizontal dimensions to 12" coursing.
Lay brick with 4" - 8" bond.
Bond shall be plumb and adjusted to work and evenly with full unit, closure of utility of openings and corners.
Spread mortar on inside and outside shells of brick only -- not on cross web.
Butler head joints at least 1" at inside and outside edges only; do not make full joints.
At bottom of all exterior cavity walls install grout slope to weep holes 2'-0" on center. Install suitable wicks 1/4" in diameter.
When mortar has become thumbprint hard, all exposed horizontal and vertical joints shall be tooled slightly concave.
Joints not exposed may be struck flush.
Fill voids at 4" steel columns with mortar as brick are laid. Leave space between brick and flange of 6" steel columns open.

Step back brick tp permit joining of new work. Tooth only when approved by Architect. Where fresh masonry joins masonry that has set, the exposed surface of set masonry shall be cleaned, roughened and lightly wetted so as to obtain the best possible bond with the new work. All loose brick and mortar shall be removed.
Protect newly laid brickwork from rain and consequent streaking of brick with mortar stains. Protect brickwork below concrete sills with building paper during the pouring of concrete sills.
Clean, upon completion of brickwork, all exposed brick not painted. Use stiff brushes and water. If this does not suffice, the surface shall be thoroughly wetted with clean water and scrubbed with a solution of not more than one part hydrochloric (muriatic) acid to ten parts of water, then thoroughly rinse with clean water. If masonry is cleaned with an acid solution, all sash, metal lintels, and other corrodible parts shall be thoroughly protected.
Green stains or efflorescence resulting from vanadium salts in masonry must not be treated with acid solution. Follow manufacturers recommendation for removal.

2. Structural Glazed Facing Tile: All Structural Glazed Tile having absorptions (1-hour boil) of 12 percent or more shall be wetted sufficiently 3 or 4 hours before installing so that the rate of absorption when laid does not exceed this amount. All units shall be free of surface water when installing. Use glazed tile for partitions and wainscot where shown on the drawings.
Lay tile plumb and true to lines.
Tile walls glazed on both sides and made up of single units shall have the more important side laid true to a line.
Lay tile in full mortar beds.
All joints including collar joints fitted solid with mortar.
Lay with vertical joint at center of unit below.
Provide 5 1/3" vertical and 12" horizontal coursing.
When mortar has become thumbprint hard, all exposed joints shall be tooled slightly concaved.
Joints to be uniform width.
Bond properly at corners.
Stop back tile to permit joining of new work. Tooth only when approved by Architect. When fresh tile joins tile that has set, the exposed surface of set masonry shall be cleaned, roughened, and lightly wetted. All loose tile and mortar shall be removed.
Cut units with masonry power saw to insure straight joints without chipped edges.
No unnecessary cutting and patching allowed.
Acid solutions shall not be used for cleaning glazed tile. Upon completion of the work, all surfaces of glazed tile units shall be washed with soap powder and warm water applied with fiber scrubbing brush, and then rinsed thoroughly with clean water. Metal cleaning tools and brushes or abrasive powders shall not be used.

3. Concrete Masonry Units: Consult coursing details on the drawings. Use concrete units for inside face of exterior walls and partition where shown on the drawings.
All high absorption units and all units laid in hot weather shall be wetted from 3 to 4 hours before they are used and the method used shall

be such as to insure uniform wetting.
All units shall be free of surface water when installing.
Lay units plumb and true to lines.
Vertical coursing dimensions laid out to 8" and horizontal coursing dimensions to 16".
Mortar joints shall be 3/8" thick with full mortar coverage on vertical and horizontal face shells. Vertical joints shall be shoved tight.
Horizontal joints when thumbprint hard shall be tooled with a 30" long V shape tool.
Vertical joints shall be struck flush.
Lay all units stacked.
Step back units to permit joining of new work. Tooth only when approved by Architect. When fresh masonry joins masonry that has set, the exposed surface of set masonry shall be cleaned, roughened and lightly wetted so as to obtain the best possible bond with the new work. All loose mortar shall be removed.
Bond properly at corners.
Cut units with power saw and suitable blade to insure straight joints.
Unnecessary cutting and patching will not be allowed.

4. Flue Lining: Install as shown on the Drawings. Top of Flue Lining to be 2" above cement wash on 4" brick rowlock cap of chimney.
Lay up with close fitting joints using Type "B" mortar. Leave inside joints smooth.
Lay lining up ahead of brick. Provide brick ledge supports for each section of lining.

5. Metal Ties: In all cavity walls and all walls made up of one unit of Jumbo Brick and one unit of Concrete Masonry or Structural Glazed Facing Tile, install metal ties 24" o.c. vertically and horizontally.

6. Masonry Wire Reinforcing: Install in 4" partition walls as shown on the drawings. Cut and bend corner members as recommended by manufacturer.

7. Masonry Anchor Rods: Install in steel beam flange and masonry walls as shown on the drawings.

8. Loose Lintels: Install in masonry walls over openings as called for on the drawings.

9. Miscellaneous Metal Anchoring Devices: Install in masonry walls where required by other trades.

10. Access Panels: Install where shown on the Drawings.
Fit masonry units securely behind trim of access panel on all four sides.

11. Boiler Room Louver: Install where shown on the Drawings. Outside face of louver to be flush with outside face of brick. Anchor securely to wall.

12. Metal Weather Stops: Install where shown on Drawings.

13. Metal Cap Flashing: Install where shown on Drawings.

14. Frame for Kitchen Storage Fan: Install where shown on Drawings.

15. View Panels: Install where shown on the Drawings.
Lay up plumb and true to line.
Fill frame jambs solid with mortar.

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## DIVISION 5

## STRUCTURAL STEEL

### 5-A SCOPE

Materials: Structural Steel, Anchor Bolts, Government Anchors, Pipe Columns, and Bulb Tees.

Installations: Workmanship, Erection, Painting.

### 5-B INCIDENTAL

Refer to A.I.A. General Conditions and the Supplements.

1. Cooperation: See Article 47 of Supplements to General Conditions.

2. Cutting and Patching: See Article 43 of the General Conditions.

3. Storage of Materials: For delivery and protection of materials see Article 72 in Supplements to General Conditions.

4. Architect's Approval: See Article 53 of Supplements to General Conditions.

5. Shop Drawings: Submit for structural steel, anchor bolts, government anchors, and bulb tees. See Article 71 of Supplements to General Conditions. Complete welding information (shop and field) and all dimensions necessary for checking the shop drawings shall be shown on the shop drawings.

6. Cleaning Up: See Article 44 of the General Conditions.

7. Specification Arrangement: See Article 50 of Supplements to General Conditions.

8. Applicable Specifications and Codes: The following Specifications and Codes form a part of this specification:

   a. American Institute of Steel Construction Publications
   Code of Standard Practice for Steel Buildings and Bridges.
   Specification for the Design, Fabrication and Erection of Structural Steel for Buildings.

   b. American Welding Code
   Arc and Gas Welding in Building Construction.

### 5-C MATERIALS

Structural Steel, Anchor Bolts, Government Anchors, Pipe Columns and Bulb Tees shall be ordinary commercial mild grade structural steel, A.S.T.M. designation A7-46.

## 5-D INSTALLATION

1. Workmanship
   a. Connections: Connections shall be as shown on the drawings. When details are not shown the connections shall conform to the requirements for A.I.S.C. standard connections. One-sided or other types of eccentric connections shall not be permitted except when shown in detail on the drawings.

      (1) Field Connections: Unless otherwise indcated on drawings, field connections shall be in accordance with the requirements of the A.I.S.C. Specification. No combination of rivets and bolts shall be used in the same face of any connection.
      (2) Welded Connections: Welded connections will be as indicated on the drawings or as specifically authorized by the Architect.

   b. Holes enlarged by burning of unfair holes in the shop or field shall not be acceptable. Holes in base of bearing plates shall be drilled. Except as shown on the drawings no holes shall be provided in members to permit connecting work of other trade unless specifically approved by the Architect.
   c. The contractor shall be responsible for setting accurately to line and grade all column footings and column anchor bolts in accordance with the general plans and anchor bolt setting plan. All abutting surfaces shall be closely fitted and bearing surfaces planned to a true bed.
   d. Finish members shall be true to line and free from twists, bends, and open joints. Members which are to be framed into other steel parts of the structure may have a variation from detailed length not greater than 1/16" for members 30' -0" in length.

2. Erection
   a. Erection as called for under this specification shall include the setting of all columns and bases and erection of all structural steel. This includes the setting of structural steel for lintels and all anchor bolts. There shall be no substitution of rivets or bolts for welded connections as shown on the drawings.
   b. Erection procedure shall conform fully to the A.I.S.C. Specification for Design, Fabrication and Erection of Structural Steel for Buildings unless otherwise noted or specifically directed by the Architect. Any extra bracing introduced to accomodate all loads to which the structure might be subjected during construction shall be left in place as long as required for safety or deemed necessary by the local building inspector.
   c. The use of a gas-cutting torch in the field for correcting fabrication errors will not be permitted on any major member of the roof framing. Its use will be permitted on minor members when the member is not under stress and then only after obtaining approval of the Architect.

3. Painting
   a. Shop Painting: One coat of red lead and oil paint.
   b. Field Painting: After erection is completed all steel surfaces on which shop coat of paint is damaged or metal is exposed by rust spots or otherwise, shall be cleaned and spot painted. Then all structural steel shall be given one field coat of red lead and oil paint.

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## DIVISION 6

## MISCELLANEOUS METALS

## 6-A SCOPE

Materials: Metal Thresholds, Metal Toilet Partitions, Fire Extinguishers, Masonry Metal Ties, Masonry Wire Reinforcing, Masonry Anchor Rods, Loose Lintels, Miscellaneous Metal Anchoring Devices, Access Panels, Map and Display Rails, Metal Grilles for Doors, Hanging Rods, Screen Wire Mesh, Hardware Cloth, Pipe Rails and Posts, Steel Areaway walls, Metal Saddles, Miscellaneous Steel, Metal Skirt at 2nd Floor windows, Metal cover for Interior Expansion Joints, Boiler Room Louver, Screen Wire Frames, Safety Nosing, Sky Domes.

Installations Specified In Other Divisions: Metal Thresholds, Metal Toilet Partitions, Fire Extinguishers, Map and Display Rails, Metal Grilles for Doors, Hanging Rods, Screen wire Mesh, Hardware cloth, Pipe Rails and Posts, Steel Areaway Walls, Metal Saddles, Metal Skirt at 2nd floor, Metal cover for Interior Expansion Joints, Screen wire Frames, and Sky Domes -- Refer to Division 11.
Masonry Metal Ties, Masonry Wire Reinforcing, Masonry Anchor Rods, Loose Lintels, Access Panels -- Refer to Division 4.

## 6-B INCIDENTAL

Refer to the A.I.A. General Conditions and Supplements.

1. Alternate: See Division 23 - Alternate #5.

2. Manufacturers, Trade Names, Catalogue Numbers: See Article 53 of the Supplements to the General Conditions.

3. Shop Drawings: See Article 71 in the Supplements to the General Conditions.

4. Specification Arrangement: See Article 50 in the Supplements to the General Conditions.

5. Delivery and Protection of Materials: See Article 72 in the Supplements to the General Conditions.

6. Measurements and Dimensions: See Article 49 in the Supplements to the General Conditions.

## 6-C MATERIALS

1. Metal Thresholds
   Aluminum 4 1/2" x 7/8" double dip interlocking threshold as manufactured by Decorite, Inc., Chamberlin Company of America, or Quaker City Metal Weatherstrip Co.

2. Metal Toilet Partitions
   All metal panel type toilet partitions as manufactured by Henry Weis Manufacturing Co. Inc., American Sanitary Partition Corp., or by Price Building Specialties Co.

Partitions shall be 32" wide and 80 or 82 inches high with 30" wide doors where called for on the drawings. Posts and rails shall be 16 U. S. Guage steel. Doors shall be 22 guage steel with 20 guage edge moulding. Partition panels shall have V shape sanitary moulding at top and bottom. Doors shall be 1" thick made of 2 sheets of steel spaced and insulated with fibre core cemented under pressure to inner metal surfaces. Edges shall be interlocked under tension with drawn mouldings welded at corners. Wall and top post fittings of steel and brass foot castings.

All material shall be given a baked on coat of primer, followed by high baked synthetic enamel. Color to be selected by Architect.

Partitions shall be furnished complete with hardware consisting of gravity hinges, heavy slide bar latch, coat hook (one in each compartment), chromium plated. Furnish bumper and combination keeper enameled to match partition.

3. Fire Extinguishers

   a. 2 1/2 gallon Pressurized Water Type Fire Extinguisher.

   b. 20 lb. Dry Chemical type Fire Extinguisher.
   Both as manufactured by the General Detroit Corp., Alkhart Brass Mfg. Co., Inc., or Seco Engineering and Mfg., Inc.,

4. Masonry Metal Ties
   Shall be rigid non-corroding steel "Z" ties of 3/16" diameter. Shall have 3" legs extending in opposite direction from 6" stem.

5. Masonry Wire Reinforcing
   Shall be Dur-O-Wall Standard #4-S in 10'-0" lengths as manufactured by Cedar Rapids Block Co. Shall be made up of 3 #9 steel rods.

6. Masonry Anchor Rods
   Shall be made up, as shown on the drawings, of 1/4" steel rods with steel characteristics same as specified for structural steel in Division 5. Provide shop coat of paint.

7. Loose Lintels
   Shall be deformed reinforcing bars and angles as called for by loose lintel schedule for openings shown on the drawings. Steel characteristics same as specified for structural steel in Division 5. Provide shop coat of paint.

8. Miscellaneous Metal Anchoring Devices
   Provide all metal anchor bolts, anchors, clips, nails, bolts, screws, nuts, washers, nelson studs, expansion sheilds, toggle bolts, straps, etc. necessary to complete work of all Divisions. Deliver to proper trade for installation.

9. Access Panels
   Size as shown on drawings.
   Shall be Type #401 by Knapp Brothers Manufacturing Co. or Style "M" "Milcor" by Inland Steel Products Co.; Frame 16 guage steel, door 14 guage steel. Provide one adjustable anchor per side. Equip panels with hinges and screw driver operated lock. Provide shop coat of paint.

10. Map and Display Rails
Shall be "Peerless" without cork insert by Beckley-Cardy Company, Loxit #BB821 by Loxit Systems, Inc., or "Screw-Tite" without cork insert by Gotham Chalkboard and Trim Co.
Provide 4 sliding combination map and display hooks for every 6 lineal foot of rail.
Rails and hooks to be aluminum.

11. Metal Grilles for Doors
Shall be "Uni-Flo-Sight Tite" core mounted in "A" frame by Barber Colman Co.; Series T-200 in Style "A" frame by Titus Manufacturing Company; or #980 V "Door Grille" by Tuttle and Bailey, Inc.
Size as shown on the drawings.

12. Hanging Rods
1 1/4" galvanized malleable iron, length as shown on the drawings.

13. Screen Wire Mesh
18 x 14 mesh .011" diameter bronze wire.

14. Hardware Cloth
4 mesh .047" diameter copper wire.

15. Pipe Rails and Posts
Shall be 1 1/2" standard galvanized steel with flush welded connections.
Provide 6" deep galvanized sleeves for each post.
Steel characteristics to be same as specified for structural steel in Division 5.
Provide shop coat of paint.

16. Steel Areaway Walls
Shall be "Standard", 16 guage U.S.S., Copper Alloy steel protected with tight coated galvanized finish as manufactured by Conely Brothers Co. or Brainard Steel Division.

17. Metal Saddles
Shall be 2 1/4" x 3/16" aluminum plain type by Decorite, Inc., Chamberlin Company of America or Quaker City Metal Weatherstrip Co.

18. Miscellaneous Steel
Including closure and hanger angles for Range Hood; channels, bars, plates, rectangular pipe, rectangular pipe sleeves, and clip angles for Stair Handrails; angle supports and angle guards for Overhead Doors.
4" channel for Glazed Partition and plate and angles at 2nd floor Expansion Joint.
Steel characteristics to be same as specified for structural steel in Division 5.
Provide shop coat of paint.

19. Metal Skirt at 2nd Floor Windows
Shall be U.S.S. 16 guage hot rolled steel 4-0" x 8'-0" stock panels.
Provide shop coat of paint.

20. Metal Cove for Interior Expansion Joints
Shall be 16 guage hot rolled steel. Fabricate as shown on the drawings.
Provide shop coat of paint.

21. Boiler Room Louver
Shall be Model No. 103-6 by Ventilouvre Co. Inc.
Fabricated of 16 guage galvanized steel.
Size as shown on Drawings.

22. Screen Wire Frames
Shall be 7/16" x 1 1/2" tubular steel frames complete with screens as manufactured by Chamberlain Company of America.
Screen cloth to be 18 x 14 mesh .0113 guage bronze wire.
Size as shown on the Drawings.

23. Safety Nosings
Shall be type #101 - 1/4" thick - 3" wide - "Alumogrit" with cross hatch surface.
Nosing to stop 4" from each end of tread length. For all exterior and interior concrete steps as manufactured by Wooster Products, Inc.

24. Sky Domes
Shall be "Wascolite Skydomes" as manufactured by Wasco Flashing Company. Square dome type S3636. Size to fit square curb on Roof.
The domes shall be formed from a single flat sheet of clear colorless thermoplastic acrylic resin 3/16" thick.
Frame shall be 16 ounce cold rolled copper and shall be attached to dome as shown on the manufacturers detail with neoprene cork gaskets, and studs at each attachment point.
Each sky dome shall be supplied complete and ready for attachment to curb specified in Division 11.

# DIVISION 7

## STEEL WINDOWS

### 7-A SCOPE

Materials: Commercial projected windows, mullions, window screens, window hardware, anchors.

Installations: Commercial projected windows, mullions, window screens, window hardware, anchors.

### 7-B INCIDENTALS

Refer to the A.I.A. General Conditions and the Supplements.

Manufacturers, Trade Names, Catalogue Numbers

1. See Article 53 in the Supplements to the General Conditions.
2. Shop Drawings: See Article 71 in the Supplements to the General Conditions.
3. Specification Arrangement: See Article 50 in the Supplements to the General Conditions.
4. Delivery and Protection of Materials: See Article 72 in the Supplements to the General Conditions.

   Replace promptly any material damaged on arrival unless approved by Architect.
5. Measurements and Dimensions: See Article 49 in the Supplements to the General Conditions.
6. Cooperation: See Article 47 in the Supplements to the General Conditions.

### 7-C MATERIALS

As manufactured by J. S. Thorne Company, Truscon Steel Division, or William Bayley Company.
Chemical and physical properties to conform to applicable requirements of latest A.S.T.M. Designation.

1. Commercial Projected Window

   Framing and muntin bars shall be low carbon, hot rolled steel approximately 1-3/8" deep, and 1/8" thick.
   Applied weathering members shall be cold rolled steel not less than 16 gauge.
   Mortise and tenon and rivet framing joints.
   Arc weld in addition to riveting corners of projected ventilators.
   Horizontal and vertical framing and muntin bars shall be one piece.
   Apply weathering members to framing bars where required to establish double contact, by spot welding.

Omit vertical muntins where indicated on drawings at factory.
Projected ventilators shall be balanced on steel side arms and provided with brass friction shoes which slide vertically in channel weathering members.
Windows shall project in or out as noted in Schedules and Type Detail.
Windows shall be arranged for inside glazing.
Clean all steel windows of grease and loose scale, bonderize and paint with one coat of gray primer paint baked dry before shipping.
Provide standard "security type" window where called for on the drawings.

2. Mullions

Shall be standard plate and channel mullion as detailed on drawings for all windows.
Furnish standard clips at mullion to anchor at head and sill.
Bonderize and paint one coat of gray primer paint baked dry before shipping.

3. Window Screens

Designed for easy attachment from inside building.
Open out vents screened on inside of windows with wicket for access to locking handle.
Open in vents screened on outside of windows.
Screen cloth 16 mesh .0113 gauge bronze wire held in frames by galvanized steel rod splines.
Screen frames of solid formed steel sections.
Frames bonderized -- painted one coat gray primer baked dry.
Fittings painted to match screen frame.
Provide for all ventilator sections in kitchen, kitchen storage room, kitchen toilet and cafeteria.

4. Window Hardware

Shall be steel of stock design.
Hardware located less than 6'-0" from the floor shall be for hand operation.
All hand operated hardware located more than 5'-6" from floor shall have pole ring at top of ventilator sash.
All hardware located above 6'-0" shall be for pole operation only.

5. Anchors

All necessary anchors, window clips, bolts, etc., shall be provided by window manufacturer.

## 7-D INSTALLATION

1. Commercial Projected Windows

Set plumb and true, properly aligned and securely anchored at heads and jambs.
Erection of windows shall be in accordance with the manufacturer's recommendations.
Install ventilators complete with fittings and accessories.

Adjust to operate smoothly and uniformly with light touch before glazing, as specified in Division 12.
Do not erect windows until one coat of prime paint, as specified in Division 17, has been applied on entire surface of window.
Where windows anchor to steel framing, set window in mastic before anchoring.

2. Mullions

Erect plumb and true, properly aligned.
Anchor securely top and bottom to prevent any vibration.
Before erecting mullions apply one coat of paint as specified in Division 17.

3. Window Screens

Do not erect screens and fittings until all painting as specified in Division 17 has been applied.
Install where called for in Section 7-C, Item No. 3.

4. Window Hardware

Install all hardware as per manufacturer's directions.

5. Anchors

Anchors, window clips, bolts, etc., shall be installed as the work proceeds.

***

# DIVISION 8

## ROOF DECK AND SPANDREL PANELS

### 8-A SCOPE

Materials: Roof deck and floor forming deck, cement topping, cant strips, spandrel panels.

Installations Specified In This Division: Roof deck and floor forming deck, cement topping, cant strips, spandrel panels (exterior),

Installation Specified In Other Divisions: Spandrel panels (for stair railing) ..... Refer to Division 11.

### 8-B INCIDENTALS

Refer to the A.I.A. General Conditions and the Supplements.

1. Cooperation: See Article 47 in the Supplements to the General Conditions.

2. Specification Arrangement: See Article 50 in the Supplements to the General Conditions.

3. Shop Drawings: See Article 71 in the Supplements to the General Conditions.

4. Delivery and Protection of Materials: See Article 72 in the Supplements to the General Conditions.
   Care should be taken in handling decking when unloading. Slabs should be carried on edge and never carried flat; should be stacked on level sleepers not more than 12" apart and carefully piled flat on top of each other, slabs being set down on edge on top of pile and allowed to drop down to flat position with entire edge bearing on slab below so as not to subject slab to undue bending.
   Although moisture has no effect on decking, protect piles of slabs from the weather so they will not absorb too much water or freeze together.
   In erection, if the roof is not too high, use a ramp from the truck to the roof so that the decking can be carried directly to the roof.
   If hoisted, one slab at a time can be hoisted with slings.
   Slabs should be kept on edge.
   If the height of roof is too great for hoisting one slab at a time, a cage should be made which will carry from six to ten slabs on edge.

5. Manufacturers, Trade Names, Catalogue Numbers: See Article 53 in the Supplements to the General Conditions.

### 8-C MATERIALS

1. Roof Deck and Floor Forming Deck

   Shall be Porex slabs, 32" x 96" x 2" as manufactured by the Concrete Products, Inc., under franchise agreement with the Porete Manufacturing Company. Slabs shall be made of Portland cement and mineralized wood fibre set under pressure.

2. Cement Topping

Roof deck shall be covered with a 5/8" thick nailable cement topping mixed as follows:

By Volume - (1) cement
(1) sand
(2) coarse pine sawdust

Addition of any commercial cement dispersing agent increases workability. Mix should be wet enough to screen through a #3 hardware cloth to eliminate only large aggregate, bark, etc.

3. Cant Strips

Shall be of same material as cement topping for decking.

4. Spandrel Panels

Shall be Celotex "Cemesto" panels as manufactured by the Celotex Corporation. Standard size panels, 4'-0" x 7'-11 3/4" x 1 1/8" (for stair railing) and 4'-0" x 7'-11 3/4" x 1 9/16" (for exterior spandrel panels).

## 8-D INSTALLATIONS

1. Roof Deck and Floor Forming Deck

Install as indicated on the drawings. Provide a minimum of 1/2" bearing on all four sides of slabs. Do not use any damaged portions of slabs.
Where decking is used for floor forming (second floor), each slab shall be supported midway between slab-purlins by a "T" shape wood form supported at either end by the structural beams. The "T" shall be made up of (2) - 2" x 6" with the 6" top of the "T" flat against the underside of the slab. Forms shall not be removed until concrete slab has been poured on it and has hardened. Consult Architect before removing forms.

2. Cement Topping

Decking should be thoroughly soaked during application of cement topping. Topping should be flowed on decking and screeded to level using 1/4" rods or screeds laid crosswise to length of slabs. No walking or traffic should be allowed on roof until cement topping has hardened. Any slabs injured in any way should be put aside and used where full sized slab is not necessary, but in no instance may damaged portion be used. Use travel boards until topping has developed its strength. Manufacturer shall install topping.

3. Cant Strips

Install all cant strips where shown on the drawings.
Size as shown on the drawings.

## 4. Spandrel Panels (Exterior)

Panels shall be anchored to structural steel with 1/4" Nelson studs, cadmium plated, nuts and 7/8" caulking washers. Provide 1/4" cadmium plated bolts, 16 gauge "S" clips and $1\frac{1}{2}$" x 12 gauge cadmium plated washers for anchoring where required on the drawings.
Install "ZEE" flashing specified in Division 9 in all horizontal joints as detailed on drawings. Install flashing specified in Division 9 for the top and bottom of spandrels as detailed on the drawings.
All work shall be done as detailed on the drawings, and shall be in accordance with the Celotex Corporation's latest revised Cemesto Panel Design and Construction Application Data Manual, File 5000.
Caulk all joints.

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# DIVISION 9

## ROOFING, SHEET METAL AND MEMBRANE WATERPROOFING

## 9-A SCOPE

Materials: 5 ply tar and gravel rag felt roof with gravel surfacing, base and cap flashing, metal cap flashing, metal gravel stops, metal gutters and downspouts, cast iron boots, metal weather stops, flashing for spandrel panels (exterior), membrane waterproofing.

Installations Specified in This Division: 5 ply tar and gravel rag felt roof with gravel surfacing, base and cap flashing, metal cap flashing, metal gravel stops, metal gutters and downspouts, cast iron boots, membrane waterproofing.

Installations Specified in Other Divisions: Metal cap flashing, metal weather stops .... Refer to Division 4. Flashing for spandrel panels (exterior) .... Refer to Division 8.

## 9-B INCIDENTALS

1. Specification Arrangement: See Article 50 in the Supplements to the General Conditions.

2. Manufacturers, Trade Names, Catalogue Numbers: See Article 53 in the Supplements to the General Conditions.

3. Cleaning Up: See Article 44 in the General Conditions.

4. Delivery and Protection of Materials: See Article 72 in Supplements to the General Conditions.

5. Guarantee: See Article 60 in the Supplements to the General Conditions. Furnish manufacturer's 20 year surety bond covering all built-up roofing and flashing. Furnish 5 year guarantee on membrane waterproofing.

## 9-C MATERIALS

1. 5 Ply Tar and Gravel Rag Felt Roof With Gravel Surfacing:

   Similar to Johns Manville Specification #700 for a 20 year bond. Manufactured by Johns Manville Corporation, Koppers Company, Inc., or Philip Carey Manufacturing Company.

2. Base and Cap Flashing:

   Base flashing similar to Johns Manville 16" wide Super A asbestos base flashing reinforced with a 15 lb. asbestos backer felt underneath. Cap flashing to be similar to Johns Manville asbestile cap flashing. As manufactured by Johns Manville Corporation, Koppers Company, Inc., or Philip Carey Manufacturing Company.

3. Metal Cap Flashing:

   Shall be 26 gauge galvanized iron. All exposed edges hemmed 1/2". Shall overlap base flashing at least 4". Paint 2 coats of rust inhibitive paint before installing. Metal cap flashing over expansion joint curbs shall be 16 oz. soft copper.

4. Metal Gravel Stops:

Shall be 26 gauge galvanized iron.
Form with drip.
Paint 2 coats of rust inhibitive paint before installing.
Gravel stops and gutters shall not be made in one piece.

5. Metal Gutters and Downspouts:

Shall be 26 gauge galvanized iron, of size and shape as shown on the drawings.
Anchoring straps to be 1/4" thick strap iron as shown on drawings.

6. Cast Iron Boots:

Shall be 5'-0" high cast iron pipe with cast iron boot, sized to fit respective downspouts.

7. Metal Weather Stops:

Shall be fabricated of 16 oz. soft copper sized and shaped as shown on the drawings.

8. Flashing for Spandrel Panels (Exterior):

To be 20 gauge galvanized iron. Fabricate "ZEE" shape flashing for horizontal joints and flashing for top and bottom of spandrel panels as shown on the drawings.
Fabricate special combination flashing and gutter at bottom of spandrel panels over doors to Stair #2 as shown on Drawings.

9. Membrane Waterproofing:

Felt to be #15 asbestos waterproofing felt.
Mopping to be standard asphalt.
Waterproofing cement.
Primer to be concrete primer.
As manufactured by Johns Manville, Koppers Co., or Philip Carey Manufacturing Company.

## 9-D INSTALLATION

1. 5 Ply Tar and Gravel Rag Felt Roof with Gravel Surfacing:

Installation to be similar to that called for in Johns Manville Specification #700.

2. Base and Cap Flashing:

Installation to be similar to that recommended by Johns Manville.
Install asbestos base flashing.
Apply three course asbestile cap flashing extending up and under metal cap flashing.

3. Metal Cap Flashing:

Install, as shown on the drawings, all other metal cap flashing not installed in Divisions 4 and 11.

4. Metal Gravel Stops:

Nail securely to top of built up roofing as detailed. Use galvanized nails. Imbed in roofing pitch and cover with two layers of felt mopped in place before gravel is applied.

5. Metal Gutters and Downspouts:

Install where shown on the drawings.
Secure downspouts to wall with 1/4" thick metal straps not over 6'-0" o.c.
Paint gutters and downspouts as follows:
a. Treat with a solution made by adding 8 oz. of copper sulphate crystals to 1 gal. of warm water in glass or earthen vessel.
b. Wash with water -- allow to dry thoroughly.
c. Paint one heavy coat of red lead and oil.
d. Touch up scarred or burned surfaces after erection.
e. Downspouts to extend 3" into C.I. boot.

6. Cast Iron Boots:

Install at all downspouts 5'-0" cast iron pipe and boot. Anchor securely to wall with 1/4" thick metal straps, one at the top of pipe and one at bottom of pipe.

7. Membrane Waterproofing:

Install where shown on the drawings.
Apply concrete primer to entire surface of brick that membrane is to be applied to.
Mop entire surface with asphalt waterproofing cement, using not less than 25# per square.
Apply 1st ply of asbestos felts, lapping horizontal joints 2" and end joints 6".
Mop entire surface of felt with asphalt cement same as above.
Apply second ply of asbestos felts same as above, except joints to be half way between joints of first ply.
Apply final coat of asphalt cement on second ply, same as above.

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## DIVISION 10

## HOLLOW METAL DOORS, METAL FRAMES AND OVERHEAD DOORS

## 10-A SCOPE

Materials: Doors, Door Frames, Frame for Glazed Partition, View Panels, Metal Stools, Partition Bucks, Frame for Kitchen Storage Fan, Overhead Doors.

Installations Specified in This Division: Doors, Door Frames, Frame for Glazed Partition, ~~Metal Stools~~, Partition Bucks, Overhead Doors (Including angle supports and guards specified in Division 6).

See addendum #1

Installations Specified in Other Divisions: View Panels, Frame for Kitchen Storage Fan -- Refer to Division 4.

## 10-B INCIDENTAL

Refer to the A.I.A. General Conditions and the Supplements.

1. Shop Drawings: See Article 71 in the Supplements to the General Conditions.

2. Specification Arrangement: See Article 50 in the Supplements to the General Conditions.

3. Delivery and Protection of Materials: See Article 72 in the supplements to the General Conditions.

4. Measurements and Dimensions: See Article 49 in the Supplements to the General Conditions.

5. Cooperation: See Article 47 in the Supplements to the General Conditions.

## 10-C MATERIALS

1. Doors: Provide flush metal doors 1 3/4" thick where called for on the Drawings. Doors shall be constructed of two plates not less than 16 guage steel assembled and reinforced with 16 guage vertical stiffeners spaced not over 4" horizontally and continuous top to bottom of door. Stiffeners spot welded to both exterior plates. All steel to be cold rolled full pickled stock.
Doors to be insulated for noise and asbestos lined where necessary to meet Underwriters' requirements for 2 hour fire resistant door with with exception of glass area which shall be size as shown on the Drawings. Suitable mortises and reinforcements to be provided for locks, hinges, door checks, and other hardware items.
After assembling, all metal is to be thoroughly cleaned of rust, oil and grease and given a shop coat of rust-resisting metallic primer.

   Templates for hardware, as specified in Division 14, for metal doors shall be delivered to plant of door manufacturer.
Provide 18 guage high grade galvanized steel louver blades in metal

doors where called for on the Drawings.
Allow clearances wherever metal thresholds are to be installed.

2. **Door Frames:** Shall be 16 guage steel unit combination frames, as detailed on the Drawings, for all interior door openings.
Shall be 14 guage steel frames, as detailed on the Drawings, for all exterior door openings including glass sidelights, glass transom and 16 guage glass stops.
All frames to be mortised, reinforced, drilled, tapped for all hardware with all miters or joints continuously welded and ground smooth.
All frames equipped with minimum of 3 adjustable corrugated anchors each side, where attached to masonry or required by details.
Provide proper clip angles welded to bottom of frames for anchoring to floor, except where frames are welded to steel columns.
All frames shall have a shop coat of paint.

3. **Frame for Glazed Partition:** Shall be of same material and construction as for interior door frames in Item #2.
Fabricate as detailed on the Drawings.
Glass stops shall be 16 guage.
Partition frame to include Door frame for Door #67.
Grind all welds smooth.
Frame to have shop coat of paint.

4. **View Panels:** Frames shall be 16 guage steel as detailed on drawings.
Provide 2 adjustable corrugated metal anchors per jamb.
Continuous weld all joints and grind smooth.
Provide 16 guage glass stops as detailed.
Frame shall have shop coat of paint.

5. **Metal Stools:** (At Library Interior Windows) shall be 16 guage steel as detailed on the drawings.
Fabricate to fit accurately against column flanges and web.
Stools to have shop coat of paint.
See Addendum #1 back of the book.

6. **Partition Bucks:** Shall be 16 guage steel as detailed on the Drawings for partitions at window mullions.
Bucks to have shop coat of paint.

7. **Frame for Kitchen Storage Fan:** Shall be 16 guage steel as detailed on the Drawings.
All miters or joints continuously welded and ground smooth.
Frame to have shop coat of paint.

8. **Overhead Doors:** Shall be "All Metal Industrial, Model 50" doors by Industrial Equipment Company "Steel Rol-Top" doors by Kinnear Manufacturing Co. or "#475 Door" by Overhead Door Corp.
Size as shown on the Drawings. Doors shall have no openings for glass. Sections shall be equal widths of approximately 24" wide, rolled from 16 guage galvanized steel having a coating of 1.75 ounces per square foot as per A.S.T.M. standards, then chemically treated to insure paint adhesion. All weld spots to be spot painted with aluminum paint. No exposed edges shall appear on the interior side of these sections. All sections shall be designed to withstand a wind pressure of 20 lbs. per square foot. Doors shall be counterbalanced by means of torsion springs and flexible airplane cable.

Tracks shall be rolled from heavy gauged galvanized steel.
Strong ball bearing rollers with case harden races and one piece steel tires at top and bottom and at each section joint of door.
Each door shall be provided with full size cylinder lock with night latch and hand fitting bolt handle inside and outside, with large cast iron door handle on bottom section on outside only.
Head of door provided with an adjustable seal strip and bottom of door provided with a continuous rubber astragal.
Entire door, tracks, etc. to receive a shop coat of paint.

## 10-D INSTALLATIONS

1. Doors: Install where shown on the Drawings. Shall fit tightly against door stop of frame on all sides when in closed position.
   Install so there will be no binding at head or jambs.
   Top and bottom edges of door shall receive prime coat as specified in Division 17 before final installation.

2. Door Frames: Install plumb and true to line where shown on the Drawings. Anchor clip angles at bottom of frames securely to floor with 3/8" expansion bolts.
   Frames at steel columns shall be set in mastic and anchored to column with 1/4" oval head machine screws 1'-0" on center.

3. Frame for Glazed Partition: Install plumb and true to line where shown on the Drawings.
   Anchor frame securely to 4" channel with 1/4" oval head machine screws 1'-0" on center on both sides.
   Tack weld frame to steel column. Grind welds smooth.

4. ~~Metal Stools: (At Library Interior Windows) Install as shown on the Drawings.~~
   ~~Weld solid to flanges and web of steel columns. Grind welds smooth.~~
   Omit - See Addendum #1

5. Partition Bucks: Install where interior partition butts window mullion as shown on the Drawings.
   Anchor Buck securely to window mullion and concrete window sill.

6. Overhead doors: Install as detailed on the Drawings.
   Follow manufacturers' recommendation for installing.
   Install angle supports and guards specified in Division 6, as detailed on the Drawings.

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# DIVISION 11

## CARPENTRY

## 11-A SCOPE

Materials: Nailers, wood curbing and miscellaneous wood blocking, wood doors, chalkboards, tackboards, coat hook strips, storage room, closet and janitor's closet shelving, screen wire partition, screen door, counters in library work room, science preparation room, commercial machine room and office, stage flooring, folding wood partition, plywood partition, convector insulation. Home economics book shelving.

Installations: Nailers, wood curbing, miscellaneous wood blocking, wood doors (including metal grilles specified in Division 6 and finish hardware specified in Division 14), chalkboards (including map and display rails specified in Division 6) and tackboards, coat hook strips (including coat hooks specified in Division 14), storage room, closet and janitor's closet shelving (including hanging rod specified in Division 6), screen wire partition (including screen wire frames, screen wire mesh and hardware cloth specified in Division 6, Screen door and finish hardware specified in Division 14), counters in library work room, science preparation room, commercial machine room and office, stage flooring, folding wood partitions, plywood partition, convector insulation. Metal thresholds, metal toilet partitions, fire extinguishers, pipe rails and posts, metal skirts, metal saddles, metal cover for interior expansion joints, stair railings and Sky Domes, all specified in Division 6. Home economics book shelving.

## 11-B INCIDENTAL

Refer to the A.I.A. General Conditions and the Supplements.

1. Delivery and Protection of Materials: See Article 72 in the Supplements to the General Conditions. Stack lumber properly to insure ventilation and protection from weather and other damage. Do not bring wood finishing materials or millwork, including wood doors, into building until concrete and masonry are thoroughly dry. Follow manufacturer's recommendations for storing wood doors on the job before installing.

2. Shop Drawings: See Article 71 in the Supplements to the General Conditions. Submit for all millwork.

3. Manufacturers, Trade Names, Catalogue Numbers: See Article 53 in the Supplements to the General Conditions.

4. Cleaning Up: See Article 44 in the General Conditions.

5. Specification Arrangement: See Article 50 in the Supplements to the General Conditions.

6. Cooperation: See Article 47 in the Supplements to the General Conditions.

7. Guarantee: See Article 60 in the Supplements to the General Conditions. Furnish two year guarantee on stage floor.

8. Rough Carpentry

First class in every respect.
Provide and install all necessary blocking and rough framing for all finish carpentry work and work of other trades.
Frame properly, fit closely and set accurately to required lines and levels and secure rigidly in place.
Secure wood framing and blocking to steel framing with screws or bolts as required.
Provide construction ladders and runways as required for general use of all workmen.

9. Finish Carpentry

First class in every respect.
Set straight, true, plumb, level in perfect alignment and fit closely.
Miter moldings at corners, cope at angles.
Secure with fine finish nails, screws and/or glue.
Set all nail heads.
Install all finish hardware required -- fit carefully -- attach securely. Do not mar existing work. Demonstrate to Architect that all hardware works correctly upon completion.
Hand smooth all finish work at job; remove all mill marks and leave ready for painter.
Protect all finish work after erection.
Bevel edges of doors to proper angle for perfect operation.

## 11-C MATERIALS

1. Nailers and Wood Curbing and Miscellaneous Wood Blocking

#1 common Southern yellow pine, sound and free from warp. Grading by Southern Pine Association. Size as shown on the drawings.

2. Wood Doors

All wood doors called for on the drawings shall be hollow core flush door "Interior Grade", as manufactured by the Mengel Company Plywood Division, Roddis Plywood Corporation, or Paine Lumber Co., Ltd.
Thickness shall be 1 3/4". Sizes as called for on the drawings.
Provide openings in doors for metal grilles and light openings with mouldings and stops, including stops for grilles. All moulding and stops shall be fitted and tacked in at the factory ready to receive either glass or grilles.
Stiles shall be not less than 1 1/8" wide yellow poplar.
Top and bottom rails shall be not less than 2 3/4" yellow poplar.
Lock blocks shall be not less than 3 1/8" wide by 21" long, centered.
Lock block both sides will be required.
Cores constructed of 3/8" thick rigid insulating fibre board spaced $2\frac{1}{2}$" o.c. or equal construction.
Face veneers of rotary cut, unselected gum, assembled with grain running the long way at right angles to the grain of the cross banding.
Both faces of all doors smoothly belt-sanded before leaving factory, providing perfect surfaces for natural finishes.
Any doors warped more than 1/4" shall be rejected.
Wood door for dirty dish pass window shall be similar to above, except provide solid core.

3. Chalkboards

Size as shown on the drawings.
Shall be 106 Grapholite Chalkboard by Claridge Products, Inc., Presdwood Chalkboard, Item #210, by Gotham Chalkboard and Trim Co., Inc., or Titesite Hyloplate by Weber Costello Company.
All chalkboard to be green and 1/4" thick.
Provide metal trim, matching color, for joints in chalkboard.
Surfaces perfectly true, smooth, free of defects, depressions and projecting particles.
Wood for chalkboard trim shall be "B" and better kiln dried southern yellow pine, sound and free from warp. Grading by Southern Pine Association.
Fabricate as detailed on the drawings.

4. Tackboards

Size as shown on the drawings.
Shall be Nucork #550 by Claridge Products, Inc., Pebble-Grain, Item #165, by Gotham Chalkboard and Trim Co., Inc., or "Presko" by Weber Costello Company.
Surfaces perfectly true, free of defects and depressions.
Wood for tackboard trim shall be "B" and better kiln dried Southern yellow pine, sound and free from warp. Grading by Southern Pine Association.
Fabricate as detailed on the drawings.

5. Coat Hook Strips

1" x 4" nominal size wood.
"B" and better kiln dried Southern yellow pine, sound and free from warp. Grading by Southern Pine Association.

6. Storage Room, Closets, and Janitor's Closet Shelving

All lumber to be "C" grade kiln dried Southern yellow pine, sound and free from warp. Grading by Southern Pine Association.
All shelving to be 3/4" thick, cleats to be 1" x 4" x 3/4" and posts to be 2" x 2".

7. Screen Wire Partition

All lumber to be #1 common Southern yellow pine, sound and free from warp. Grading by Southern Pine Association.
Sizes as shown on the drawings.

8. Screen Door

All lumber shall be "B" and better kiln dried Southern yellow pine, sound and free from warp. Grading by Southern Pine Association. Size as shown on the drawings.

9. Counters in Library Work Room, Science Preparation Room, Commercial Machine Room and Office

All lumber to be "B" and better kiln dried Southern Yellow Pine, sound and free from warp. Grading by Southern Pine Association.

Plywood to be white pine or fir finish, similar in color throughout, sound two sides grade required if both sides are exposed, otherwise sound one side. Conform to U. S. standards for interior plywood. Fabricate as detailed on the drawings.

Provide hardwood edging strips or trims at all exposed edges of plywood. All counter tops to be 3/4" thick. All shelving to be 3/4" wood except shelving for counter in office to be 3/4" plywood. Office counter front and exposed panels to be 1/4" plywood.

Provide 2" x 3" framing and 2" x 4" bases as shown on the drawings.

### 10. Stage Flooring

Shall be "Ironbound" flat grain oak, T.&.G. 25/32" x 2½" second and better grade in 12", 10" and 8" lengths (at mill's option) by Robbins Flooring Co. Individual strip shall be manufactured with flat backs and suitable mastic recesses. Provide necessary saw toothed steel splines.

### 11. Wood Folding Partitions

At Door #10, 14, 15 and 44 and in Band Room #166. Shall be "Pella" with "Hardwood Veneer", by Rolscreen Co. Veneer as selected by Architect.

Provide all necessary hardware and fittings.

Entire partition in each location to slide to one side as shown on the drawings.

Provide head and jamb mouldings.

Sized as shown on the drawings.

Wood trim to be "B" and better kiln dried Southern yellow pine.

Grading by Southern Yellow Pine Association.

### 12. Plywood Partition

Over folding partition in Band Room #166. Plywood shall be 3/8" thick white pine or fir finish, similar in color throughout, sound on one side. Conform to U. S. standards for interior plywood. Lumber shall be "B" and better kiln dried Southern yellow pine, sound and free from warp. Grading by Southern Pine Association.

### 13. Convector Insulation

Shall be Alfol Aircell Asbestos Insulation as manufactured by Reflectal Corporation.

### 14. Home Economics Book Shelving

All lumber "B" and better kiln dried Southern yellow pine; grading by Southern Pine Assn. Size and detail as shown on drawings, of 3/4" thick shelving, sides and back.

## 11-D INSTALLATIONS

### 1. Nailers

Before installing, treat prefitted wood with one drenching brush coat of Celcure paint as manufactured by Celcure Wood Preserving Corp.,according to manufacturer's specifications. Soak holes thoroughly. Install as shown on drawings, anchoring securely to angle facia. Nailer shall line true to line of facia.

2. Wood Curbing

Before installing, treat prefitted wood with Celcure same as for Nailers in Item #1.
Install as shown on the drawings for kitchen exhaust fan and install similar curbing for all roof exhaust fans. Also install as shown on the drawings for roof expansion joints. Anchor securely to bulb tees with 1/2" ∅ bolts and washers, two per side for fans; for expansion joint curbing anchor to angles 2'-0" o.c.
Nail wood curbing together at corners.

3. Miscellaneous Wood Blocking

Treat with Celcure same as for nailers in Item #1.
Install where shown on the drawings.

4. Wood Doors

Install where shown on the drawings.
If more than 3/4" has to be cut from door height remove equal amounts from both top and bottom of door.
After all necessary cuts and fittings have been made, remove door from opening and apply prime coat as specified in Division 17 for wood doors, to the top and bottom edges of the door before installing permanently in opening.
Install finish hardware; follow manufacturer's directions for installing hardware.
Install metal grilles for doors where called for on the drawings.

5. Chalkboards and Tackboards

Install in strict accordance with manufacturer's recommendations.
All joints true and tight with adjoining surfaces on even plane.
Install wood trim and wood chalk rail as shown on the drawings.
Anchor securely to masonry.
Install map and display rail full length of head trim of all chalkboards as per manufacturer's recommendations.

6. Coat Hook Strips

Install wherever two or more coat hooks are called for on the drawings.
Anchor to wall with 1/4" countersunk toggle bolts 16" on centers staggered.
Install coat hooks on wood strip 12" on centers.

7. Storage Room, Closet, and Janitor's Closet Shelving

Install as shown on the drawings.
Anchor wood cleats to wall with 1/4" toggle bolts 24" on centers.
Anchor 2" x 2" vertical supports to floor with metal clip angles and 1/4" ∅ expansion bolts.
Install hanging rod where shown on the drawings.

8. Screen Wire Partition

Before installing, treat prefitted wood with Celcure same as for nailers in Item #1 and, after Celcure is dry, apply prime coat of paint specified in Division 17.

Framing shall be anchored to masonry and concrete with 3/8" ⌀ expansion bolts and washers approximately 16" on centers staggered. Where door stops occur countersink bolts., Anchor framing to steel angle clips with 3/8" ⌀ thru bolt.

Install screen wire frames as shown on the Drawings.
Frame to be completely painted as specified in Division 17 before installation.
Install Screen Wire Mesh and Hardware Cloth on screen Door.
Hardware cloth to be in bottom panel only and on outside face of Screen Wire Mesh.
Install Finish Hardware for Screen Doors.
Screen Door to be completely painted as specified in Division 17 before final installation.

9. Counters in Library Work Room, Science Prep. Room, Comm. Machine Room and Office
Install as shown on the Drawings.
All counters anchored to floor with 2 1/2" x 2 1/2" x 1/8" angle clips and 1/4" ⌀ bolts.
Clips to be 2'-0" on center.
Where counters are at walls anchor cleats to wall with 1/4" ⌀ toggle bolts 16" on center.

10. Stage Flooring
Install where shown on the drawings, strictly in accordance with manufacturers recommendations for continuous strip flooring.
Install 2 plies of 15# asphalt satuated felt on concrete floor, each set in Ironbound self-priming asphalt mastic with edges butted and joints offset.
Wood shall be laid in continuous strips in a full bed of cold-troweled ironbound self-priming mastic, interlocked with steel sawtoothed splines.
Install shoe mould as shown on the Drawings.

11. Wood Folding Partition
Install, where shown on the Drawings, strictly in accordance with manufacturers recommendations.
Install all hardware provided with the partition.
Anchor 2" x 4" wood jamb and head to steel beams and steel columns with 1/4" round head bolt 16" on center staggered. Anchor to masonry with 1/4" round head toggle bolts 16" on center staggered.

12. Plywood Partition
(Above Folding Partition in Band Room.)
Install as detailed on the Drawings.
Anchor 2" x 4" lintel securely to steel beams and columns.
No joints in plywood between beams.
Install Door Recess as shown on the drawings. Anchor 2" x 4" wood trim 2" x 4" blocking to masonry wall with 1/4" round head toggle bolts 16" on center staggered. Nail wood trim to blocking.
Install hardware specified in Division 6 for Door Recess.

13. Convector Insulation

Install on wall behind convectors the full height and length of all Convectors hung on masonry walls.
Install as per manufacturers recommendations with the aluminum side facing the interior of the building.

14. Metal Threshold

Install where called for on drawings.
Fit threshold securely around door jamb and stop.
Set firmly and solidly in mastic.
Anchor to floor with aluminum countersunk expansion screws approximately 8" on centers.

15. Metal Toilet Partitions

Install, where shown on Drawings, strictly according to manufacturers recommendations.
Use anchoring devices recommended by manufacturer.

16. Fire Extinguishers

Install pressure water type in Classrooms, corridors, Industrial Arts Shop, Stage and one in Vocational Agriculture Shop.
Install Dry Chemical type in Home Economics, Kitchen, Boiler Room and one in Vocational Agriculture Shop.
Provide satisfactory hook, anchored securely to wall, for holding Extinguisher.
Top of Extinguisher to be 60" from Floor.

17. Pipe Rails and Posts

Install as detailed on the Drawings.
Set pipe columns in 6" pipe sleeve and fill with sulphur or lead.
Shall be installed plumb and true to line.

18. Metal Skirts

Install where shown on the Drawings.
Anchor to steel columns with 3/16" sheet metal screws 1'0" on center.
Anchor to floor with 1/4" expansion bolts 1'0" on center. Anchor to window sill with 3/16" machine bolts 1'0" on center.
Fit tightly around web and flanges of steel columns.

19. Medal Saddles

Install where called for on the Drawings.
Fit saddle securely around door jamb and stop.
Anchor to floor with aluminum countersunk screws approximately 8" on center.

20. Metal Cover for Interior Expansion Joints

Installed where called for on the Drawings.
Anchor covers to masonry with 1/4" toggle bolts 1'0" on centers.

Anchor covers to steel with 1/8" machine screws 1'0" on center.
Anchor on one side only.

### 21. Stair Railing

Install as detailed on the Drawings.
All welds to be ground smooth.
Set posts in sleeves with lead.
Install spandrel panels, specified in Division 8, as detailed on the Drawings.
Clean and weld spots and touch up with paint before installing paint as specified in Division 17.

### 22. Sky Domes

Install as shown on the Drawings.
Insure a watertight installation.
Follow manufacturer's recommendation for installation.

### 23. Home Economics Book Shelving

Install where shown on the drawings.
Anchor securely to masonry walls with 1/4 inch ∅ toggle bolts.

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# DIVISION 12

# GLASS AND GLAZING

## 12-A SCOPE

Materials: Glass, putty.

Installations: Glazing

## 12-B INCIDENTAL

Refer to the A.I.A. General Conditions and the Supplements.

1. Manufacturers, Trade Names, Catalogue Numbers: See Article 53 of the Supplements to the General Conditions.

2. Specification Arrangement: See Article 50 in the Supplements to the General Conditions.

3. Measurements and Dimensions: See Article 49 in the Supplements to the General Conditions.

4. Cleaning Up: See Article 70 in the Supplements to the General Conditions.

5. Patching: Replace glass breakage and reset at no extra cost to Owner. Replace putty if within one year putty shrinks, cracks, crawls or falls out. Reimburse Owner for any additional expense incurred such as painting replaced putty and other work.

6. Samples: Submit sample of putty.

## 12-C MATERIALS

1. Glass

   a. Clear glass shall be double strength "B" quality sheet and 3/16" heavy sheet of glazing quality as manufactured by Libby Owens Ford Glass Company or Pittsburgh Plate Glass Company. Each piece of glass to have manufacturer's label showing grade.

   b. Obscure glass shall be "Luxlite" 1/8" thick, frosted on both sides, by Mississippi Glass Company or "Pointex" 1/8" thick, frosted on both sides, by Blue Ridge Glass Company. Each piece of glass to have manufacturer's label showing pattern.

   c. Wire glass shall be 1/4" polished wire glass by Mississippi Glass Company or Blue Ridge Glass Company. Each piece of glass to have manufacturer's label showing pattern.

2. Putty

   For setting glass in metal shall be type manufactured for the specific purpose. All other putty shall be 5% litharge and balance whiting and linseed oil.

## 12-D INSTALLATIONS

### Glazing

All glass installed in windows and doors shall be double strength glass except where noted on drawings for 3/16" heavy sheet glass, obscure glass, and wire glass.
Back and face putty all glass.
Rabbets and glazing beads shall be primed and painted before applying putty.
Fasten movable sash in place until putty has set.
Secure glass in steel sash with glazing clips.
Puttying shall be cleanly done and retouched upon completion.
No thumb puttying allowed.
Glass in wood frames shall be bradded in.
Secure glass in metal and wood doors, borrowed lights and wherever shown or specified with stops fitted and furnished by others.
Brass down any wood bead projecting beyond rabbet before permanent setting.
Protect previously finished work of this and other divisions.

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# DIVISION 13

## CAULKING

### 13-A SCOPE

Material: Caulking Compound

Installation: Caulking

### 13-B INCIDENTALS

Refer to the A.I.A. General Conditions and the Supplements.

1. Manufacturers, Trade Names, Catalogue Numbers: See Article 53 in the Supplements to the General Conditions.

2. Specification Arrangement: See Article 50 in the Supplements to the General Conditions.

3. Sample: Submit sample of Caulking Compound.

### 13-C MATERIAL

Caulking Compound
Gum consistency.
Of composition to remain plastic, adhesive, and cohesive to maintain weathertight joints where exposed to weather and structural movement.
Shall not shrink excessively, crack, flow or stain.
Shall form surface film tough enough to hold paint within 7 days.
"Pecora" or "Vultex" manufacture.

### 13-D INSTALLATION

Caulking
Check details on the Drawings carefully for caulking requirements.
Caulk all windows at sills both sides, wherever window anchors to masonry both sides, and at interior side of mullions.
Caulk all door frames both exterior and interior in masonry walls the full perimeter of frame on both sides.
Caulk all sides of Wall Exhaust Fan Frame on exterior face of wall.
Caulk all joints between wood and steel.
Where wood framing for screen wire partition and screen doors anchor to masonry caulk both sides full length.
Caulk all joints between brick and steel.
Caulk all joints between steel and concrete at window sills.
Caulk 1/4" expansion joint in concrete sills.
Use picked oakum wherever necessary.

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# DIVISION 14

## FINISH HARDWARE

### 14-A SCOPE

Materials: Builders Hardware

Installations Specified In Other Divisions: Hardware - Refer to Divisions 10 and 11.

### 14-B INCIDENTAL

Refer to the A.I.A. General Conditions and the Supplements.

1. Manufacturers, Trade Names, Catalogue Numbers: See Article 53 in the Supplements to the General Conditions.

2. Specification Arrangement: See Article 50 in the Supplements to the General Conditions.

3. Cooperation: See Article 47 in the Supplements to the General Conditions.

4. Shop Drawings: See Article 71 of the Supplements to the General Conditions. Submit for all Hardware.

5. Delivery and Protection: See Article 72 in the Supplements to the General Conditions. Contractor receiving hardware responsible for care, preservation and protection of same until acceptance of building by Owner. Pack each item of hardware separately complete with trim, screws, washers, etc., with label and number. Deliver to factory, shop or mill of manufacturers or Sub-contractors requiring same or to building as and when directed.
   Furnish typewritten schedule with each shipment of hardware.

6. Hands of Door: Architect reserves right to change swing and hand of doors, if desired, before doors are set.

7. Items Not Specified: Any hardware for doors not specifically specified in this division, but necessary to complete the job, will be furnished in accordance with similar hardware on similar doors.

### 14-C MATERIALS

1. Finish

   Of all hardware throughout to be U S 10, Dull Bronze, except toilets which shall be U S 26 Polished Chrome. Butts to be PC, primed for painting. Knobs to have cast shanks with screwless type sleeve shanks.

2. General

In general all doors having closers will have ball bearing butts. On doors opening to outside, butts to be bonderized. No butts on the job to be less than 4 1/2 x 4 1/2" and shall be 5" x 5" where specified. Door stops shall be of the floor type as specified, furnished with suitable expansion shields.
Door closers shall be of sizes specified and shall be dull bronze or aluminum sprayed finish.

3. Builders Hardware List

a. 4 Exterior Doors - 1, 2, 3, 4 - Ext. from Lobby 2/RHRB - 2/LHRB
3'4" x 6'10" x 1 3/4" HMMF

6 Pr. Butts - BBK146P-5 x 5
"A" 4 Panic Bolts - DB2926-MK
4 Closers - 104
4 Brackets - 26 3/4 - 4
4 Kick Plates - 10" x 38" - US10 - 16 Ga.

b. 1 Pr. Doors - 26 - Stair #2 from Corridor - RHRB - 3' 0" x 6' 6" x
1 3/4" HMMF

1 Pr. Doors - 54: Stair #1 from Lobby - RHRB - 3' 4" x 6'10" x
1 3/4" HMMF

1 Pr. Doors - 55 - Ext. from Stair #1 - RHRB - 3' 4" x 6'10" x
1 3/4" HMMF

1 Pr. Doors - 100: Stair #1 from Corridor - RHRB - 3' 0" x 6'10" x
1 3/4" HMMF

1 Pr. Doors - 109: Stair #2 from Corridor - RHRB - 3' 0" x 6'10" x
1 3/4" HMMF

15 Pr. Butts - BBK 146 P - 5 x 5
"A" 10 Panic Bolts - DB 2926 - MK
10 Closers - 104
2 Brackets - 26 3/4 -4 For Exterior Door
5 Removable mullions - 2565
6 Stops - DB 360 1/2
4 Stops - DB 384 1/2
6 Kick plates - 10" x 34" - US10 - 16 Ga.
4 Kick plates - 10" x 38" - US10 - 16 Ga.

c. 1 Door - 27 Ext. from Stair #2 - RHRB - 3' 4" x 7'-0" x 1 3/4"-HMMF
1 Door - 28 " " " #2 - RHRB - 3' 4" x 7' 0" x 1 3/4"-HMMF
1 Door - 29 " " " #2 - RHRB - 3' 4" x 7' 0" x 1 3/4"-HMMF
1 Door - 30 " " " #2 - RHRB - 3' 4" x 7' 0" x 1 3/4"-HMMF
1 Door - 46 Ext. from Corridor - RHRB - 3' 4" x 6' 10 1/2" x 1 3/4"
HMMF
1 Door - 47 " " " - RHRB - 3' 4" x 6' 10 1/2" x 1 3/4"
HMMF

1 Door - 56: Ext. from Corridor-LHRB - 3' 4" x 6' 10½" x 1 3/4 HMMF
1 Door - 57: Ext. " " RHRB - 3' 4" x 6' 10½" x 1 3/4 HMMF
1 Door - 90: Ext. " Cafeteria -RHRB-3' 4" x 6' 10½" x 1 3/4 HMMF
1 Door - 91: Ext. " " RHRB-3' 4" x 6' 10½" x 1 3/4 HMMF

15 Pr. Butts - BBK 146P - 5x5
"A" 10 Panic Bolts - DB 2926 - MK
10 Closers - 104
10 Brackets - 26 3/4 - 4
10 Kick plates - 10" x 38" - US10 - 16 Ga.

d. 1 Door - 9: Corr. to Receiving - LH - 3" x 6' 6" x 1 3/4" MF
1 Door -13: " " Clinic - RH - 3" x 6' 6" x 1 3/4" MF

3 Pr. Butts - BB146P - 4 1/2 x 4 1/2
"A" 2 Locks - DB 702 - 7031 TPY-MK
2 Closers - 102
2 Stops - DB 384 1/2

e. 1 Door - 7: Receiving to Prin. Office - RH - 3' x 6' 6" x 1 3/4" MF
1 Door - 16: Corridor to Guidance Office - RH- 3' x 6' 6" x 1 3/4" MF
1 Door - 34: Prep. Rm. from Biol. Rm.- LHR - 3' x 6' 6" x 1 3/4" MF
1 Door - 36 - Prep. Rm. from Physics Rm.-RHR- 3' x 6' 6" x 1 3/4" MF
1 Door - 35: Prep. Rm. from Storage Rm. -RHR- 3' x 6' 6" x 1 3/4" MF
1 Door - 22: Mimeo. to Commercial - LH - 3' x 6' 6" x 1 3/4" MF
1 Door - 23: " " " - RH - 3' x 6' 6" x 1 3/4" MF
1 Door - 21: Commer. from Stor. - LHR - 2' 4" x 6' 6" x 1 3/4" MF
1 Door - 24: " " " - RHR - 2' 4" x 6' 6" x 1 3/4" MF
1 Door - 41: Corridor from Jan. Closet-RHR- 2' 4" x 6' 6" x 1 3/4" MF
1 Door - 42: " " Storage - RHR - 3' x 6' 6" x 1 3/4" MF
1 Door - 49: Library to Work Room - RH - 3' x 6' 6" x 1 3/4" MF
1 Door - 50: " " " Confer.-RH - 3' x 6' 6" x 1 3/4" MF
1 Door - 51: Confer. to Work Room -RH - 3' x 6' 6" x 1 3/4" MF
1 Door - 53: Corr. to Storage - RH - 3' x 6' 6" x 1 3/4" MF
1 Door 122: Corr. to Storage - RH - 3' x 6' 6" x 1 3/4" MF
1 Door 117: Corr. to Jan. Closet - RH 2' 4" x 6' 6" x 1 3/4" MF
1 Door 66 - Ind. Arts to Supplies - LH - 3' x 6' 6" x 1 3/4" MF
1 Door 67: " " " Planning - RH - 3' x 6' 6" x 1 3/4" MF
1 Door 70: Voc. Agr. Shop to Tools - RH - 3' x 6' 6" x 1 3/4" MF
1 Door 71: Tool Rm. from Supply - LHR - 3' x 6' 6" x 1 3/4" MF
1 Door 76: Voc. Agr. Shop from Office - RHR - 3' x 6' 6" x 1 3/4" MF
1 Door 77: Voc. Agr. C.R. from Office - LHR - 3' x 6' 6" x 1 3/4" MF
1 Door 78: " " " to Storage - RH - 3' x 6' 6" x 1 3/4" MF
1 Door 81: Kitchen to Storage - LH - 3' 4" x 6' 6" x 1 3/4" MF
1 Door 93: Stage to Band Room - LH - 3' x 6' 6" x 1 3/4" MF
1 Door 94: " " " " - RH - 3' x 6' 6" x 1 3/4" MF

40 1/2 Pr. Butts - 146P - 4 1/2 x 4 1/2
"A" 14 Locks - Dr 702 - 7031 TPY-MK - For Door - 7, 16, 49, 50, 51, 53, 122, 66, 67, 70, 78, 81, 93, 94
"A" 7 Locks - DB 702 - 7051 TPY-MK - For Doors 35, 21, 24, 42, 71, 76, 77
"A" 6 Locks - DB 702 - 7023 TPY-MK - For Doors 34, 36, 22, 23, 41, 117
27 Stops - DB 384 1/2

f. 1 Door - 20: Corridor to Commercial C.R.-LH-3' x 6'6" x 1 3/4" MF
1 Door - 25: " " " " RH-3' x 6'6" x 1 3/4" MF
1 Door - 31: " " Gen. Science " -RH-3' x 6'6" x 1 3/4" MF
1 Door - 32: " " Biology " -RH-3' x 6'6" x 1 3/4" MF
1 Door - 33: " " " " -LH-3' x 6'6" x 1 3/4" MF
1 Door - 37: " " Physics-Chem." -RH-3' x 6'6" x 1 3/4" MF
1 Door - 38: " " " " " -LH-3' x 6'6" x 1 3/4" MF
1 Door - 58: " " Home Ec. " -RH-3' x 6'6" x 1 3/4" MF
1 Door - 62: " " Liv. Center -RH-3' x 6'6" x 1 3/4" MF
1 Door - 61: " " Home Ec. C.R.LH-3' x 6'6" x 1 3/4" MF
12 Doors- 101, 102, 103, 105, 107, 110, 111, 112, 118, 119,
120, 121: Corr. to Typical C. R. - RH - 3' x 6'6" x 1 3/4" MF
1 Door - 104: Corridor to Art Room - RH - 3' x 6'6" x 1 3/4" MF
1 Door - 108: " " Multi-Pur. - RH - 3' x 6'6" x 1 3/4" MF
1 Door - 113: " " Music Room - RH - 3' x 6'6" x 1 3/4" MF
1 Door - 65: Exterior to Liv.Center- LH- 3' x 6'10½" x 1 3/4" HMMF
1 Door - 74: " " Voc.Agr.Shop-LH- 3' x 6'10½" x 1 3/4" HMMF
1 Door - 79: " " " " C.R.-LH- 3' x 6'10½" x 1 3/4" HMMF
1 Door - 92: " " Band Room -LH- 3' x 6'10½" x 1 3/4" HMMF

43 1/2 Pr. Butts - 146P - 4 1/2 x 4 1/2
"A" 29 Locks - DB702 - 7055 - TPY-MK
29 Stops - DB 384 1/2
29 Holders - #44 - US10

g. 1 Door - 8: Receiving from Vault -RHRB-3' x 6'6" x 1 3/4" HMMF

1 1/2 Pr. Butts - BB 146P 4 1/2 x 4 1/2
"A" 1 Lock - DB702 - 7551 TPY-MK
1 Closer - #3

h. 1 Door - 18: Corridor to Toilet Vest.-LH-3' x 6'6" x 1 3/4" MF
1 Door - 39: " " " " RH-3' x 6'6" x 1 3/4" MF
1 Door - 17: " " Men Tea Lounge-RH-3' x 6'6" x 1 3/4" MF
1 Door - 45: " to Women " " LH-3' x 6'6" x 1 3/4" MF
1 Door - 83: Kitchen to Dressing Rm. -LH-2'4" x 6'6" x 1 3/4" MF

7 1/2 Pr. Butts - BB146P - 4 1/2 x 4 1/2
5 Pull Plates - DB4445 - 3 1/2 x 14
5 Push " - DB2325 1/2 - 3 1/2 x 14
5 Closers - #2
5 Stops - DB384 1/2
4 Kick Plates - 10 x 34 - US10 - 16 Ga.
1 " Plate - 10 x 26 - US10 - 16 Ga.

i. 1 Door - 43: Women's Lounge to Toilet - RH-2'4" x 6'6" x 1 3/4" MF
1 Door - 19: Toilet Vest. to Boys " - LH-3' x 6'6" x 1 3/4" MF
1 Door - 40: " " " Girls " - RH-3' x 6'6" x 1 3/4" MF
1 Door -106: Corridor to Boys Toilet -RH -3' x 6'6" x 1 3/4" MF
1 Door -116: " " Girls " -LH -3' x 6'6" x 1 3/4" MF
1 Door - 96: Cafeteria " Boys " -LH-2'4" x 6'10" x 1 3/4" MF
1 Door - 97: " "Girls " -RH-2'4" x 6'10" x 1 3/4" MF

10 1/2 Pr. Butts - BB146P - 4 1/2 x 4 1/2
7 Locks - DB158 - MK - TPC - US26
7 Pull Plates - CR 4445 - 3 1/2 x 14

7 Push Plates - DB2325 1/2 - 3 1/2 x 14
4 Kick Plates - 10" x 34" - US10 - 16 Ga.
3 Kick Plates - 10" x 26" - US10 - 16 Ga.
7 Closers - #2SBL
7 Stops - CR 384 1/2

j. 1 Door - 114: Music Rm. from Storage - RHRB-2'4" x 6'6" x 1 3/4" MF
1 Door - 115: " " " " LHRB-2'4" x 6'6" x 1 3/4" MF

3 Pr. Butts - 146P - 4 1/2 x 4 1/2
"A" 2 Locks - DB 702 - 7051TPY-MK
2 Stops - DB 384 1/2

k. 1 Door - 6: Prin.Office to Toilet - RH - 2'4" x 6'6" x 1 3/4" MF
1 Door - 12: Clinic to Toilet - LH - 2'4" x 6'6" x 1 3/4" MF
1 Door - 63: Grooming to Toilet - LH - 2'4" x 6'6" x 1 3/4" MF
1 Door - 69: Ind.Arts to Toilet - RH - 3' x 6'6" x 1 3/4" MF
1 Door - 75: Voc. Agr. to Toilet - RH - 2'4" x 6'6" x 1 3/4" MF
1 Door - 82: Dress. Rm to Toilet - LH - 2' x 6' 6" x 1 3/4" MF

9 Pr. Butts - 146P - 4 1/2 x 4 1/2
6 Locks - DBXCR702 - 438TPY
6 Stops - CR384 1/2

l. 1 Door - 5: Prin.Office from Closet - LHRB-2'4" x 6'6" x 1 3/4" MF
1 Door- 59: Liv. Center " " -LHRB -2'4" x 6'6" x 1 3/4" MF
1 Door- 60: " " " " -LHRB -2'4" x 6'6" x 1 3/4" MF
1 Door- 123: Band Room " " -RHRB -2'4" x 6'6" x 1 3/4" MF
1 Door- 124: " " " " -RHRB -2'4" x 6'6" x 1 3/4" MF
1 Door- 125: " " " " -RHRB -2'4" x 6'6" x 1 3/4" MF

9 Pr. Butts - 146P - 4 1/2 x 4 1/2
6 Latches - DB702 - 020TPY
6 Stops - DB384 1/2

m. 1 Door - 11: Communicating-Receiving to Clinic - LH - 3' x 6'6" x 1 3/4" MF
1 Door - 126: Communicating- Home Ec. to Liv. Center - RH - 3' x 6'6" x 1 3/4" MF
1 Door - 127: Communicating-Home Ec. to Liv. Center - LH - 3' x 6'6" x 1 3/4" MF

4 1/2 Pr. Butts - 146P - 4 1/2 x 4 1/2
3 Locks - DB702 - 438 TPY x DB 859 1/4
3 Stops - DB 384 1/2

n. 1 Pr. Doors - 48: Lobby from Library - RHRB - 3' x 6'6" x 1 3/4" MF

3 Pr. Butts - BB146P - 4 1/2 x 4 1/2
2 Pulls - DB4445 - 3 1/2 x 14
2 Push Plates - DB 2325 1/2 - 3 1/2 x 14
2 Closers - #102
2 Flush Bolts - DB 2879 - 12"
"A" 1 Lock - DB 6012 - MK
2 Kick Plates - 10" x 34" - US10 - 16 Ga.

o. 1 Pr. Doors - 52: Corridor to Lobby - 3' x 6'6" x 1 3/4" MF

3 Pr. Butts - BB146P - 4 1/2 x 4 1/2
2 Pull Plates - DB 4445 - 3 1/2 x 14
2 Push Plates - DB2325 1/2 - 3 1/2 x 14
2 Closers - 102
2 Kick Plates - 10" x 34" - US10 - 16 Ga.

p. 1 Door - 64: Liv. Center to Grooming -LH- 3' x 6'6" x 1 3/4" MF

1 1/2 Pr. Butts 146P - 4 1/2 x 4 1/2
1 Lock - DB702 - 438 TPY
1 Stop - DB 384 1/2

q. 1 Pr. Doors - 72: Ext. from Ind. Arts Shop - RHRB-3' x 6'10" x 1 3/4" MF

3 Pr. Butts - BBX 146P - 4 1/2 x 4 1/2
"A" 1 Lock - DB702 - 7055 TPY-MK
2 Flush Bolts - DB 2879 - 12"
1 Closer 103 - Active Door
1 Bracket - 26 3/4 - 3 Active Door
2 Kick Plates - 10" x 34" US10 - 16 Ga.

r. 1 Pr. Doors - 98: Ext. from Cafe - RHRB - 3' x 6'10" x 1 3/4" HMMF
1 " " - 99: " " " - RHRB - 3' x 6'10" x 1 3/4" HMMF

6 Pr. Butts - BBK146P - 5 x 5
"A" 4 Panic Bolts - DB2926 - MK
2 Removable Mullions - 2565
4 Closers - 104
4 Brackets - 26 3/4 - 4
4 Kick Plates - 10" x 34" US10 - 16 Ga.

s. 1 Door - 86: Cafeteria from Coat Room - RHRB - 3' x 6'10" x 1 3/4"MF
1 Door - 87: Coat Rm. from Kitchen - RHRB -2' x 6'10" x 1 3/4" MF
1 Door - 88: Cafeteria from Kitchen - RHRB -3' x 6'10" x 1 3/4" MF
1 Door - 89: " to " - LH -3' x 6'10" x 1 3/4" MF

6 Pr. Butts - BB146P - 4 1/2 x 4 1/2
4 Pull Plates - DB4445 - 3 1/2 x 14
4 Push Plates - DB 2325 1/2 - 3 1/2 x 14
"A" 4 Locks DB 6013 - MK
4 Closers - 102
3 Kick Plates - 10" x 34" - US10 - 16 Ga.
1 " " - 10" x 22" - US10 - 16 Ga.

t. 1 Pr. Doors - 95: Ext. from Boiler Rm.-RHRB-3'6" x 8'0" x 1 3/4" HMMF

4 Pr. Butts - BB146P - 5x5
"A" 1 Lock - DB702 - 7051TPY-MK
2 Flush Bolts - DB2879 - one 12" and one 18"
1 Closer - #104 - Active Door
1 Bracket - 26 3/4 - 4 - Active Door

u. 1 Door - 84: Ext. to Kitchen - RH - 3 '4" x 6'10½" x 1 3/4" HMMF

1 1/2 Pr. Butts - BB146P - 5 x 5
"A" 1 Lock - DB702 - 7023 TPY-MK
1 Closer - #104
1 Kick Plate - 10" x 38" US10 - 16 Ga.

v. 1 Screen Door - 80: From Garbage - 3'4" x 7'0" x 1 3/8" WF
1 " " - 85: " Kitchen - 3'4" x 6'10" x 1 3/8" MF

1 1/2 Pr. Butts - BBK 242P - 3 1/2 x 3 1/2 - Wood Frame
1 1/2 " " - BBK 146P - 3 1/2 x 3 1/2 - Metal Frame
2 Sets Push Bars - 122 - US10
2 Pulls - DB02210 1/4
2 Closers - 2

w. 1 Dirty Dish Pass Wd. - 1 3/8"

1 Pc. Continuous Hinge - 311 1/4 A5-3" - 24" long
2 Surface Bolts - DB 1580 1/2 - 6"
2 Hooks & Eyes - 3 1/2 " Brass & Rawl Plugs for Masonry

x Miscellaneous

6 Doz. C & H Hooks - DR1033
17 Mirrors - 5091 - over each Lav. in Toilets and Clinic, Grooming Room and Dressing Room.

26 Paper Holders - 309 - for each w. c.
1 Wall type key cabinet - complete with 50 extra key blanks.

Key Tags - 1 1/4" Brass and Link - 1 for each lock - Stamped as directed by Architect.

29 Window Poles - 7025 1/4 - 6'
29 Pole Hangers - DB 1296

Locks marked "A" Keyed Different and MK

6 Master Keys for Locks "A"

## 14-D INSTALLATION

Hardware shall be installed in accordance with the instructions of the manufacturer and shall be removed when the doors are painted, later replaced and adjusted.
All hardware shall be shown to work properly, keys tagged and demonstrated in the presence of the Architect before final acceptance.

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# DIVISION 15

## EQUIPMENT

## 15-A SCOPE

Materials: Kitchen equipment, metal lockers, library shelving, home economics equipment, (clinic wall cabinets.

Installations: Kitchen equipment, metal lockers, library shelving, home economics equipment, clinic wall cabinets, science equipment.

## 15-B INCIDENTALS

Refer to the A.I.A. General Conditions and the Supplements.

1. Alternate: See Division 23 - Alternate #4.
2. Cooperation: See Article 47 of the Supplements to the General Conditions.
3. Manufacturers, Trade Names, Catalogue Numbers: See Article 53 of the Supplements to the General Conditions.
4. Shop Drawings: See Article 71 in the Supplements to the General Conditions.
   Submit for all items in this Division.
5. Specification Arrangement: See Article 50 in the supplements to the General Conditions.

## 15-C MATERIALS

1. Kitchen Equipment (Room #165)

   a. Dish Washing Installation Dish Table (Dirty and Clean): Shall be 14 guage galvanized steel, size and shape as shown on the plans. Shall have 3" integral up-turned edges with integral 1 1/2" diameter roll, at all sides except where flushed down into dishwasher. At wall lines, all edges turned up 10" and returned to wall 2" or 45° angle. Where sheet sizes do not permit one-piece construction, joints are to be tight, with hariline soldered seams, and with heavy under-supporting bands or angles. All corners, rolled edges to have welded non-corrosive seams. All corners of rolled edges to be fully rounded off to avoid sharpness. Lateral braces under top to be of same material as top and channel shape approximately 3" wide. Channels integrally welded to table top. Legs to be of 1 1/2" IPS wrought iron pipe, set in threaded flanges at top and fitted at bottom with adjustable ball feet. Approximately 10" above floor, legs are to be braced all around with 1 1/2" channel or angle (except one side of area where dish cart fits under counter) and supported at legs with die-pressed cold-rolled steel streamlined brackets. Legs, feet and channel bracing finished in gray lacquer.

Provide 14 guage galvanized steel shelf under top in area between dish washer and space for dish cart as shown on drawings. Shelf to be 10" above floor. Fabricate metal sill and jambs of pass window as integral part of dish table. Table to be fabricated to receive dish washer furnished by the City School Board.

Two Rinse Sink to be of same material as dish table. To be single sink 20" x 20" x 10" deep located as shown on the Drawings 24" from dish washer.

All corners both vertical and horizontal coved on 1" radius with intersections meeting in spherical surfaces. Sink to be entirely seamlessly welded to dish table top and furnished with 2" quick-opening valve type waste outlet, externally operated.

b. 2 Compartment Sink:

Shall be 14 guage steel hot dipped galvanized after fabrication. Inside dimensions of each compartment shall be 24" x 20" x 14".

Provide 10" high splashback turned back at the top and ends 2" to wall. Splash drilled over each compartment 8" on centers to accommodate plumbing lines. To be all-welded seamless construction with all joints, crevices, etc. eliminated and all traces of welding removed.

All corners shall be fully rounded approximately 1" radius. All edges to be integrally rolled 1 1/2" diameter with front corners fully rounded on outside of roll. Both rear corners to be curved and welded into the upturned splash.

Bottom to be scored towards 2" outlets to permit complete drainage. Outlets to be free-flowing non-clogging type fitted with removable depressed, perforated, stainless steel strainers, and shall be valve type of cast bronze, chrome plated with externally operated lever handle.

Outlet valves to set in depressions die-stamped in sink bottom at least 1/2" deep. Use no rivets. Legs to be 1 5/8" o.d. wrought iron pipe attached to steel gussets welded to bottom of sink. Feet to be adjustable height to be 36" to top of rim.

Provide drainboards of same guage and material as sink the full width of sink. Length to be 2'-0" and 3'-0" as shown on the drawings. Provide 10" splashback same as sink. Front and end edges to turn up 1" and double hemmed. Support drainboards to sink legs with braces of rigid construction.

c. Drainboards for 3 Compartment Sink:

Provide 2 drainboards (both 2'-0" long) of same guage and construction as drainboards for 2 compartment sink. Shall be constructed of stainless steel.

Fabricate to fit 3 compartment sink furnished by the City School Board.

2. Metal Lockers

Shall be Double-Tier type "SD" #223 by Berger Manufacturing Division, 12" x 12" x 72" Double Tier Lockers by Fred Medart Products, Inc., or 12" x 12" x 72" Double Tier Lockers by Lyon Metal Products, Inc., Shall be complete with coat hooks, number plate and padlock attachment to be chrome plated.

Locker to have baked on enamel finish, color selected by Architect.
No legs to be provided for lockers.
Number of lockers to be provided as shown on the drawings.
Provide standard ventilation louvers in door of each locker.
Doors shall be 16 guage steel and body shall be 24 guage steel.
Provide standard metal dust cap for all lockers.

### 3. Library Shelving (Room #137)

Shall be the Mid-Century Line of library furniture as manufactured by the Myrtle Desk Company.

Shall be of unit type of construction of heights and depths as shown on drawings. There shall be one initial section for each range of shelving and all other sections in the range shall be additional sections. An initial section of shelving shall consist of two 1-1/4" plywood ends, a top, a bottom, and shelves. It shall be 37-11/16" wide overall, An additional section of shelving is designed to fit in between the outside ends of an initial section and shall consist of the proper number of shelves, top and bottom and one intermediate upright 13/16" thick and shall be 36" wide overall.
Each section of 82" high shelving shall have six adjustable shelves and one bottom. Each section of 39" high shelving shall have two adjustable shelves and one bottom. All shelves shall be adjustable on 1" centers.
The Adjustment of the shelves shall be accomplished by having the uprights bored with holes 1" apart. The shelves shall be supported on shouldered nickel-plated steel shelf pins. Underside of shelves shall be grooved to fit over the shelf pins.
Exposed ends shall be flush panel design not less than 1-3/16" thick of five-ply construction. Front edges of ends shall be banded with solid white oak lumber 13/16" thick and rounded to a 3/4" radius. Intermediate uprights shall be of white oak 13/16" thick. Shelves shall be 13/16" thick made of poplar banded with white oak. Tops of shelving lower than 60" shall be finished and shall be of five-ply construction with rift cut white oak face.
Where wall ranges come together at corners, they shall be joined together with dummy corners. All wall shelving shall be fastened to the wall with concealed clips. All sections shall be fastened together with concealed bolts or lag screws at top and bottom. The top shall be not less than 2-3/8" high and the bottom front rail shall be not less than 6" high. The bottom shall project beyond the bottom front rail 2" and shall be tilted 10° to afford ease in reading book titles. A cork strip 2" wide shall be recessed into the bottom to prevent books from slipping.
All wall shelving shall be without backs unless otherwise stipulated.
All finishing of library shelving shall be completed at the factory and, with the exception of minor retouching, no finishing work shall be permitted at the installation site. All equipment shall be hand-sanded to a smooth even surface before any finishing materials are applied. All finishing materials shall be of the highest quality. The wood shall be uniformly stained before application of the filler and the filler shall be thoroughly rubbed into the pores of the wood with a padding machine.
There shall be applied one coat of lacquer sealer, one coat of cold lacquer and one coat of hot lacquer of the highest quality. Each coat

shall be thoroughly handsanded before the next coat is applied. The last coat shall be carefully machine and hand rubbed with pumice and oil.

### 4. Home Economics Equipment (Rooms #143 & #149)

By Wood-Metal Industries, Inc. Provide all casework as called for on the Drawings, using wood-metal catalogue numbers.

#### a. Materials

Lumber: All lumber used for cabinet and case exposed exteriors shall be of select hardwood, clear and sound, free from checks and harmful case hardening. Hardwood for interior construction shall be unselected but sound. Lumber shall be properly air dried, scientifically kiln dried to moisture content of 6% and then tempered before fabrication.

Plywoods: All plywood used for cabinet and case exposed exteriors and interiors shall be select birch or maple.

#### b. Parts

Doors: Shall be flush construction grainless tempered Preswood laminated to both sides of kiln dried edge grain hardwood frame, with grilled interior to give a warp resistant hollow core construction. Doors to be lipped for dust proofing with a uniform 3/8" radius on four edges.

Drawers: Heads shall be of same material and construction as doors. Sides to be 1/2" thick tongued, grooved and glued into heads, with 1/2" backs, tongued, grooved and glued into sides. Bottoms shall be of tempered grained Presdwood fibre panels, grooved into front, back and sides and reinforced with glue blocks.

Drawer Slides: Shall be of heavy 16-gauge cadmium plated cold rolled steel with double ball-bearing rollers on each side, four ball-bearing rollers to each drawer, for ease of operation and years of service. Automatic stops for drawers shall be an integral part of the slides.

#### c. Hardware

Hinged doors for all wall and base cabinets and cases shall have 2" or 2 1/2" high by .072" thick heavy duty chrome plated institutional type five-knuckle pin hinges. Offset kitchen cabinet type hinges will not be acceptable. Hing screws shall be concealed when door is closed. Doors under 44" high shall have one pair of hinges and those over 44" high shall have 1 1/2 pairs of hinges.
Pulls to be streamlined solid chrome plated heavy institutional type. Drawers under 24" wide to have one drawer pull and those 24" wide and over to have two pulls.
Catches to be of heavy, positive, silent rubber roller type.

d. General

Base Cabinets: Shall be 24" deep and 34 1/2" high including 4" high recessed subbase. Front frame to be of 3/4" x 1 3/4" select Maple, Birch, or Beech hardwood, with concealed mortise and tenon joints, glued and metal dowelled. Sides to be flush construction of grainless tempered Preswood on sturdy frame construction securely tongued and grooved and glued into front frame, with glue blocks for added reinforcement and with additional triangular blocks at top front corners, glued and screwed with 2 screws for great strength and rigidity. The use of nails through the front frame will not be acceptable. Backs to be recessed minimum 5/8" to enable accurate scribing to wall. Backs to be of tempered grained Presdwood fibre panels grooved into sides, tops and bottoms and further secured with glued corner blocks. Bottoms shall be of tempered grained Presdwood panels or securely fastened to 3/4" x 1 3/4" bottom frame grooved into sides for tight and sanitary interior joints.
Shelves shall be 3/4" thick of select solid hardwood with rounded front edge.
Subbases to be covered with coved rubber base moulding.

Wall Cabinets: Front frame to be 3/4" x 1 3/4" select Maple, Birch or Beech hardwood with concealed mortise and tenon joints, glued and metal doweled. Sides to be of flush construction of grainless tempered Preswood for exposed exteriors and interiors, tongued and grooved and glued into front frame. The use of nails through front frame will not be acceptable. Tops and bottoms of wall cabinets to be solid select hardwood, tongued and grooved and glued into sides of cabinet for maximum hanging strength with glue block reinforcement. Further hanging strength to be obtained with use of 2 1/2" x 3/4" hardwood hanging rails securely fastened to inside top of back. Backs to be of tempered grained Presdwood fibre panels securely dadoed into sides, top and bottom and further reinforced with glue blocks. Backs to be recessed to allow accurate scribing to wall upon installation. Wall cabinets to be 12 1/2" deep. Shelves to be adjustable on 1" centers and shall be 3/4" thick select solid plywood with rounded front edge.

Tall Cases: Front frame to be minimum 1 1/8" x 1 3/4" select Maple, Birch or Beech hardwood, with concealed mortise tenon joints, glued and metal doweled. Sides shall be flush construction of 3/4" select, solid hardwood plywood tongued and grooved and glued into front frames, and reinforced with glued corner blocks. The use of nails through face of front frames will not be acceptable. Backs to be of grainless tempered Preswood securely dadoed into sides, top and bottom and further reinforced with glue blocks. Backs to be recessed. Tops and bottoms to be of grainless tempered Preswood, grooved into sides and securely fastened to 3/4" x 1 3/4" hardwood frames, Top and bottom frames to be glued and screwed into sides and front frame.
Shelves to be adjustable on 1" centers and shall be of 3/4" thick select solid hardwood with rounded front edge. Cases to be 24" deep and 84" high, including 4" high recessed subbase. Subbase to be covered with coved rubber base moulding.
TW2484 modified by removing mirror, hat shelf and coat rod and installing 3 adjustable shelves.

e. Finish

Enamelled Finish: To be obtained by thorough sanding of cabinets and cases, followed by application of highest grade primer coat. When thoroughly dry, the prime coat shall be carefully sanded, and then receive highest grade enamel finish, in standard white color. The interior surfaces of the cabinet and bottom of wall cabinets shall be given the same careful finishing process as the exterior of the cabinet. The underside of base cabinets and cases and outside backs of all cabinets shall be given a heavy sealer coat.

f. Sink and Counter Tops

Sink and counter tops shall be constructed of 3/4" thick exterior grade plywood. Surface material of "Formica". Shall be glued with water-proof glue and heavily pressed by special presses to plywood, insuring a thorough bond. Color by Architect.
Front and side edges shall be trimmed with 1 1/2" non-drip stainless steel edging and all corners shall be neatly mitred and soldered. Back splashers of heights as specified shall be properly screwed to deck and joint sealed with stainless steel cove moulding to insure against water leakage. Top and sides of back splashers shall be trimmed with 1" stainless steel edging.

Kitchen sinks shall be American Standard #P-6535 size 54" x 25" Royal Hostess line cast iron, acid resisting, enamel with 4" integral back. (Fittings specified in Plumbing Division #18.) Provide American Standard #525 R and #525 L Union Strips at each sink for connecting case work counter tops to sinks.

5. Clinic Wall Cabinets (Room #109)
Shall be three - AWC 3030 wall cabinets by American Radiator and Standard Sanitary Corporation.

## 15-D INSTALLATION

1. Kitchen Equipment (Room #165)
Install where shown on the drawings all equipment not marked "N.I.C". This includes all equipment marked with an asterisk on the Drawings which will be furnished by the City School Board and shall be picked up by the contractor at points within a 5 mile radius of the building site and transported to the site and installed in place. For plumbing and electrical connections, refer to Division 18 and 21 and to Plumbing and Electrical Drawings.

2. Metal Lockers
Install where shown on the drawings.
Anchor lockers securely to 2" x 4" wood sleeper in concrete base and to wood blocking anchored to wall.
Install as per manufacturer's recommendations.

3. Library Shelving (Room #137)
Install where shown on the Drawings.
Shall be installed strictly according to instructions of manufacturer.

4. Home Economics Equipment (Rooms #143 & #149)
Install where shown on the Drawings all equipment not marked N.I.C. This includes all equipment marked with an asterisk on the Drawings which will be furnished by the City School Board and shall be picked up by the contractor at points within a radius of 5 miles of the site, and transported to the site and installed in place. For plumbing and electrical connections, refer to Division 18 and 21 and to Plumbing and Electrical Drawings.

5. Clinic Wall Cabinets (Room #109)
Install on wall over clinic sink.
Install according to manufacturers recommendations.

6. Science Equipment (Rooms #123, #124 & #127)
All equipment marked with an asterisk on the drawings, furnished by the City School Board shall be picked up by the Contractor at points within 5 mile radius of the site, and transported to the site and installed in place as shown on the Drawings.
For plumbing and electrical connections - refer to Division 18 and 21 and to Plumbing and Electrical Drawings.

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## DIVISION 16

## COMPOSITION FLOORING

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### 16-A SCOPE

Materials: Composition Flooring, Cement, Metal Edge Strips.

Installation: Composition Flooring.

### 16-B INCIDENTALS

Refer to the A.I.A. General Conditions and the Supplements.

1. Alternate: See Division 23 - Alternate #2 and #6.
2. Cleaning Up: See Article 44 in the General Conditions.
3. Specification Arrangement: See Article 50 in the Supplements to the General Conditions.
4. Manufacturers, Trade Names and Catalogue Numbers: See Article 53 in the Supplements to the General Conditions.
5. Responsibility: Instruct contractor as to proper finish and any other details before sub-floors are poured. Examine sub-floors and report any defects to Architect before laying floors. Replace any work installed over defective sub-floors at no extra cost to Owner.
6. Protection: Keep traffic off finished floor insofar as possible. Protect from traffic with tough reinforced building paper.

### 16-C MATERIALS

1. Composition Flooring
   As manufactured by Johns-Manville, David E. Kennedy, Inc. or Mastic Tile Corporation of America.

   a. Asphalt Tile
      1/8" thick - "D" colors - "Standard Grade".
      9" x 9" squares - solid marbelized field - no border.
      Uniform size, thickness, color and quality.
      Smooth, calendered face free from warpage.
      Contain no sand, grit, vegetable, rubber or other deleterious matter.
      Free from lumps, and unmixed or free coloring matter.
      Surface shall retain polish.
      Surface shall not soften under direct rays of sun or equivalent temperature.

   b. Grease Proof Tile
      Same as item a, except tile is greaseproof and color will be selected by Architect.

2. Cement

Waterproof, approved by the asphalt tile manufacturer.
Apply in strict accordance with manufacturer's instructions.
Apply thinly, evenly and not over 1/8 lb./sq. ft. of tile.

3. Metal Edge Strips

Chrome Edge 141-XB.

## 16-D INSTALLATION

1. Composition Flooring

After inspecting sub-floors remove loose material, roughness and bumps - broom clean.
Lay in strict accordance tile manufacturer's specifications.
Cut cold to avoid shrinkage and insure perfect edges.
Work full tile to front and corridor side of class rooms.
Cut edges to fit accurately at all points.
Neatly cut and fit holes for pipes or other obstructions.
Fit joints closely to prevent collection of dirt.
Lay tile in perfectly straight lines.
Entire surface smooth and free of buckles or waves.
Seal joints at vertical surfaces with waterproof cement.
Finish all exposed edges at doors with chromedge 141-XB edging strip.
Clean, wax and polish just prior to Owner's acceptance of building.
Clean with soap and water.
Apply coat of water emulsion wax approved by tile manufacturer.
Polish.

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## DIVISION 17

## PAINTING

## 17-A SCOPE

Materials: Exterior Paint, Interior Paint, Varnish, Shellac, Putty

Installation: Exterior Paint, Interior Paint, Varnish, Shellac, Putty

## 17-B INCIDENTALS

Refer to the A.I.A. General Conditions and the Supplements.

1. Alternate: See Division 23 - Alternate #7.

2. Manufacturers, Trade Names, Catalogue Numbers: See Article 53 in the Supplements to the General Conditions.

3. Specification Arrangement: See Article 50 in the Supplements to the General Conditions.

4. Cooperation: See Article 47 in the Supplements to the General Conditions.

5. Delivery and Protection: See Article 72 in the Supplements to the General Conditions.
   Store and mix materials in an assigned space.
   Store equipment in same spaces. Keep these spaces clean and orderly at all times.
   Painting materials shall be delivered to buildings in manufacturers sealed containers.
   Deliver no material other than that specified to site without Architect's approval.

6. Protection of Work

Under no circumstance dump or empty any paint materials into plumbing fixtures, fittings or pipes.
When painting, protect adjoining surfaces carefully with clean drop cloths, masking or other suitable means.
At the end of each day store all waste and cloths in closed metal containers or destroy all waste and cloths.

7. Inspection of Surfaces

   The Contractor shall inspect all surfaces to be painted before applying any paint.
   Report any surface considered unsuitable to receive paint to the Architect.
   Obtain Architect's instructions before proceeding with work on such unsuitable surface.
   Be responsible for unsatisfactory work applied over unsuitable surfaces.

### 8. Preparation for Painting

#### Preparation of Surfaces

Surfaces clean, smooth, free of scratches and dust, thoroughly dry and sandpapered by painters where required before applying paint.

#### Fixtures and Hardware

Remove or protect during painting operations.

#### Putty Stopping

After prime coat has been applied fill all nail holes with putty colored to match finish coat.
Bring flush with surface of woodwork and sand.

#### Treatment of Knots and Sap Streaks

Give one coat of shellac at least 10 hours before painting.

#### Galvanized Metal

Wash down with turpentine or mineral spirits before painting.
Wash again with water and allow to dry. See Division 9.

#### Brickwork

Clean all loose and projecting particles of mortar with scrapes and wire brushes - point up mortar declevities.

### 9. Application of Paint

No coat applied until preceding one is thoroughly dry.
No paint applied in freezing weather or on damp surfaces.
All paint spread evenly and well, in neat, workmanlike manner.
No drops, run or sags allowed.
Finish coat free of noticeable laps or brush marks.
Any coat adjudged unsatisfactory by Architect shall be sanded or cleaned off and additional coat applied.
Ready mixed paints used in strict accordance with manufacturer's printed directions.
Use only thinners recommended by manufacturer.

### 10. Number of Coats

As specified in Section 17-D are exclusive of shop coats or any other coats specified in any other divisions.

## 17-C MATERIALS

As manufactured by Pittsburg Plate Glass Co. (whose catalogue numbers are referred to below), Sherwin-Williams Co., or Devoe and Reynolds Co. Inc.

1. Exterior Paint

   a. Primer: Sun Proof Primer

   b. Galvanized Metal Primer: 8-10 Ironhide

   c. Finish Paint: 1 Series Sun Proof Paint

2. Interior Paint

   a. Primer: 26-30 Wallhide Gloss type Interior Primer

   b. Galvanized Metal Primer: 8-10 Ironhide

   c. Finish Paint:
      Flat Paint - 24 Series Wallhide PBX Flat Wall Paint.
      Enamel Paint: 60 Series Satinhide Enamel.
      Floor Enamel: Florhide Floor Enamel.

   d. Aluminum Paint: Paste Base 22-2

3. Varnish for Doors

   Sealer: 83-170 Plywood Sealer Prime Coat
   Varnish 2nd Coat: Water Spar Varnish 83-100
   Finish Coat: Water Spar Satin Finish Varnish 83-150

4. Varnish for Counter Tops and Stage Floor

   Sealer: Water Spar Floor Seal
   Finish Coat: Water Spar Floor Varnish

5. Shellac

   Pure gum shellac free from rosin.
   Cut in pure denatured alcohol using 4 lbs. of pure gum to 1 gallon of alcohol.

6. Putty

   Pure putty of linseed oil, whiting, and white lead.

## 17-D INSTALLATIONS

1. Exterior Paint

   Paint all exterior exposed surfaces of structural steel, metal, decking, spandrel panels and wood 1 coat of primer and 2 coats of finish paint.

2. Interior Paint

   Where called for on the Drawings, all exposed surfaces of masonry walls (including structural steel and Spandrel Panels) and ceilings (including structural steel) shall receive 1 coat of primer and 2 coats of flat enamel paint.

All structural steel on unpainted wall surfaces shall have 1 coat of primer and 2 coats of Enamel paint.
All exposed surfaces of miscellaneous metal work (except in Boiler Room) including door trim, windows and screen frames, piping (and insulation for same), access panels, convectors, skirts, etc., shall have 1 coat of primer and 2 coats of enamel.
No painting on bronze, brass, copper, aluminum, stainless steel, plated metals or metals with factory finish.
The 3rd coat of paint on all 3 5/8" high bases of shelving, on all toe spaces of cabinets and 4" high painted bases on masonry walls (carry base across column faces) shall be Floor Enamel.
Where called for on the drawings all exposed surfaces of wood shelving, and cabinets shall have 1 coat of primer and 2 coats of Enamel.

### 3. Varnish for Doors

Apply on all interior wood doors, including door at Dirty Dish Pass Window. Shall have 1 coat sealer, 1 coat of Varnish (2nd coat) and 1 Finish coat of varnish (3rd coat). Top and bottom edges of door to receive prime coat immediately after door is fitted in opening (See Division 11).

### 4. Varnish for Counter Tops and Stage Floor

All plywood counter tops not having a surface material shall be hand sanded smooth, eliminating millwork marks, scratches, etc. Dust cleaned off immediately after sanding. Apply 1 coat of Floor Sealer and 1 coat of Finish Floor Varnish on all exposed surfaces of Counter Top including edges. Sand stage floor to smooth surface without ridges, scratches, etc. Remove dust immediately after sanding. Apply 1 coat of Floor Sealer and 1 coat of Finish Floor Varnish on all exposed surfaces including shoe mould.

### 5. Shellac

Where called for on the Drawings apply 2 coats of Shellac on all exposed surfaces of shelving.

### 6. Aluminum Paint

Apply two coats on the convector side of metal skirts the full height and length of all convectors on the second floor. No aluminum paint shall appear on the exposed surface of the metal skirts.

# DIVISION 18

# PLUMBING

## 18-A SCOPE

Materials: Pipe, Fittings, Joints, P Traps, Clean-Outs, Pipe Sleeves, Floor and Ceiling Plates, Unions, Pipe Supports, Valves, Sill Cocks, Floor Drains, Water Closets, Urinals, Lavatories, Sinks, Grease Trap, Showers, Drinking Fountains. Electric Counter Height Water Heater, Gas Water Heater, Gas Booster Water Heater.
Installations: Pipe, Fittings, Joints, P Traps, Clean-Outs, Pipe Sleeves, Floor and Ceiling Plates, Unions, Water Closets, Urinals, Lavatories, Sinks, Grease Trap, Showers, Drinking Fountains, Electric Water Coolers, Gas and Electric Hot Water Heaters, Tests, Connections for Kitchen Equipment, (Refer to Division 15). Filling Seven Existing Dug Wells.

## 18-B INCIDENTALS

Refer to A.I.A. General Conditions and Supplements.

1. Cooperation: See Article 47, Supplements to General Conditions.

2. Cutting and Patching: See Article 43 of General Conditions.

3. Excavation and Backfill: All excavations required for installation of plumbing equipment shall be kept open until material has been inspected, tested, and accepted. Adequate precaution shall be taken to insure proper compactness of backfill around equipment without damage to such equipment.
   Pipe trenches shall be backfilled in thin layers to twelve (12) inches above top of piping with clean earth which shall not contain stones, boulders, cinder-fill, or other materials which would damage piping or cause corrosive action. Mechanical devices such as bulldozers, graders, etc. may then be used to complete backfill to grade. Fill shall be properly compacted.
   Any bedrock or large boulders encountered in excavating for heating equipment that requires blasting will be considered extras but small boulders or rotton stone will not be so considered.

4. Storage of Materials: See Article 72 of Supplement to General Conditions.

5. Architect's Approval: See Article 53 of Supplement to General Conditions.

6. Shop Drawings: See Article 71 of Supplement to General Conditions.

7. Cleaning Up: See Article 44 of General Conditions.

8. Specification Arrangement: See Article 50 of Supplement to General Conditions.

9. Codes, Permits and Inspections: Entire installation of plumbing system shall conform to "Report of Coordinating Committee for National Plumbing Code", Domestic Commerce Series #28. Contractor shall comply with code requirements of all municipal county and state agencies having jurisdictional authority in connection with plumbing work. He shall obtain all necessary permits and inspections and shall deliver to Architect, free of charge before work is completed, all certificates of inspection issued by inspecting authorities. Gas supply system shall be in accordance with National Board of Fire Underwriters' Standard No. 54.

10. Guarantee: See Article 60 of Supplement to General Conditions.

11. Tests: All soil, waste, vent and water piping shall be tested by Contractor and approved by Architect after installation and before it is concealed by insulation, building structure, or backfill. Any apparatus which may be damaged by test pressures shall be removed before tests are made. After defects which develop are rectified, piping shall be retested until it shows no defect and is absolutely tight. All equipment required for tests shall be furnished by contractor at his expense.
Drainage System: Entire drainage and venting system shall have all necessary openings plugged to permit system to be filled with water to level of highest vent stack above roof. System shall hold water for 30 minutes without showing drop greater than 4 inches. Where portion of system is to be tested, test shall be conducted in same manner as described for entire system, except that a vertical stack 10 feet above highest horizontal line to be tested may be installed and filled with water to maintain pressure required. Pressure shall be maintained for 30 minutes.
Water System: Upon completion of roughing-in and before setting fixtures, entire hot and cold water piping shall be tested at a hydrostatic pressure of not less than 100 psig, and proved tight at this pressure. This pressure shall be maintained for a minimum of 30 minutes. Where a portion of water system is to be concealed before completion, this portion shall be tested separately in a manner described for entire system.
Gas Piping: Before gas piping is connected to gas service main it shall be tested with air to insure tightness. Gas piping shall maintain pressure of not less than 6 inches of mercury or 3 psig for period of at least 15 minutes without any drop in pressure.

12. Instruction Booklets, Etc.: See Article 79 of Supplement to General Conditions.

## 19-C & 19-D MATERIALS AND INSTALLATIONS

1 a. Pipe - Materials
Soil, waste and drain piping two inches and greater in diameter shall be coated, standard weight, bell and spigot cast iron soil pipe. Waste and drain pipe $1\frac{1}{2}$ inches and less in diameter and vent piping shall be galvanized standard weight steel. Conforming to A.S.T.M. "Standard Specifications for Welded and Seamless Steel Pipe, A120-47".

Building sewer shall be standard strength, vitrified clay sewer pipe conforming to A.S.T.M. Specification C13-50T.
Above ground gas piping shall be standard weight black steel conforming to A.S.T.M "Standard Specifications for Welded and Seamless Steel Pipe A120-47". Underground gas pipe shall be standard weight genuine black wrought iron pipe conforming to Federal Specification WW-P-441a.
Water pipe 4" and larger shall be cast iron, bell and spigot, AWWA Class D. Water pipe 3" and smaller shall be standard weight galvanized steel pipe conforming to A.S.T.M. Standard Specifications for Welded and Seamless Steel Pipe A120-47.

1 b. Pipe - Installation

1. General: Before being installed, inside of all piping shall be clean, and before final connections are made to apparatus, interior of all piping shall be washed out thoroughly with water and all foreign material removed.
2. Drainage Pipes and Vent Piping: Horizontal drainage piping shall be run in practical alignment at a uniform grade. Sloping fixture drains and horizontal branches of 3 inches nominal size and smaller shall be installed with a slope of not less than $\frac{1}{4}$ inch per foot, and larger than 3 inches nominal size, not less than 1/8 inch per foot. Where practicable, two or more vent pipes shall be connected together and extended as one pipe through the roof. Vent pipes in roof spaces shall be run as close as possible to the underside of the roof with horizontal piping pitched down without forming traps in the pipes using fittings as required. Vertical vent pipes may be connected into one main vent riser above vented fixtures. Where an end or circuit vent pipe from any fixture or line of fixtures is connected to a vent line serving other fixtures, the connection shall be at least 3 feet 6 inches above the floor on which fixtures are located, to prevent use of any vent line as waste. Horizontal waste lines receiving discharge from two or more fixtures shall be provided with end vents, unless separate venting of the fixtures is noted. Cast iron bell and spigot pipe inside the buildings shall be extended above the floor.
3. Fittings: All changes in pipe size on soil, waste, and drain lines shall be made with reducing fittings or recessed reducers. All changes in direction shall be made by appropriate use of 45° wyes, half wyes, long-sweep $\frac{1}{4}$ bends, 1/6, 1/8, or 1/16 bends. Where it becomes necessary because of space conditions to use short-radius fittings in any location, approval of Architect shall be obtained before they are installed.
4. Excavating and Trenching: Trenches for underground pipe lines shall be excavated to required depth and bottom of trenches shall be tamped hard and graded to secure required fall. Excess cut shall be filled to proper level with crushed stone. Bell holes shall be excavated so that pipe will rest on solid ground for its entire length. Rock, where encountered, shall be excavated to a depth of 6 inches below the bottom of the pipe and before pipe is laid space between bottom of pipe and rock surface shall be filled with gravel. Sever and water pipes shall be laid in separate trenches.

5. Gas Piping: Suitable drips shall be installed at the low points of all runs of gas pipe. Drips shall conform to NBFU Standard No. 54. Pipe shall grade back toward risers and drips with a slope of not less than 1 inch in 60 feet.
Gas connection to each piece of equipment shall include a shut-off cock (Crane No. 272) and a union on equipment side of cock so that one piece equipment may be shut off without interrupting service to other equipment.

2. Fittings

Fittings in pipe line shall be as per following schedule:

| Description of Pipe Line | Size | Fittings | Spec. No. |
|---|---|---|---|
| Soil, waste and drain | 2" and larger | Standard weight B&S cast iron | ASTM A74-1942 |
| Waste and drain | 1½" and smaller | Cast iron, drainage type coated with asphaltum | ASA B16.12-1942 |
| Vent | All sizes | Standard weight galvanized malleable iron, banded | Fed. Spec. WW-P-521b |
| Gas - above ground | All sizes | Standard weight black malleable iron, banded | Fed. Spec. WW-P-521b |
| Gas - underground | All sizes | Standard weight black wrought iron | Fed. Spec. WW-P-441a |
| Water | 4" and larger | B&S, cast iron, AWWA, Class D | - |
| Water | 3" and smaller | Standard weight galvanized malleable iron, banded | ASTM A-277-44T |

3. Joints

Joints in pipe lines shall be as per following schedule:

| Description of Line | Size | Joint |
|---|---|---|
| Soil, waste and drain, building sewer | 2" and larger | B & S |
| Waste and drain | 1½" and smaller | Screwed |
| Vent | All sizes | Screwed |
| Gas - above ground | All sizes | Screwed |
| Gas - underground | All Sizes | Screwed |
| Water | 4" and larger | B & S |
| Water | 3" and smaller | Screwed |

Joints in bell and spigot cast iron soil, waste, and vent pipes, or between cast iron soil, waste and vent pipes and threaded pipe or caulking ferrules, shall be firmly packed with oakum or hemp and secured with molten lead at least one inch deep. Lead shall be run in one pouring and caulked tight. Threaded pipe shall have ring or half coupling screwed on to form spigot end. No paint, varnish or putty shall be applied to jointing material until after joint has been tested and approved.
Joints in clay pipe shall be caulked with closely twisted oakum or hemp and joint secured with hot poured sewer pipe jointing compound that will not soften sufficiently at 160° F to destroy effectiveness of joint. Compound shall be CPI-2, or equal.

Joints in cast iron water pipe shall be packed with oakum or hemp and secured with molten lead at least two inches deep. Lead shall be run in one pouring and caulked tight.
All threaded joints shall have American Standard Taper Pipe Thread with graphite and oil compound applied to male thread only. Pipe ends shall be reamed or filed out to full size of bore, and all burrs, chips and cutting shall be removed. All underground threaded joints shall be coated with coal tar enamel after piping has been tested and approved.

4. Unions

Soil, waste, and vent lines: Slip joints will be permitted only in trap seals or on inlet side of traps. Tucker or hub drainage fittings shall be used for making union connections wherever practical in connection with dry vents. Use of long screws and bushings, (except fittings bushed in sand) is prohibited.
Water lines: Unions on steel pipe shall be 150 pound galvanized malleable iron, bronze to iron seat, ground joints, Walworth No. 7762 or equal. Unions shall be installed at each screwed valve and at frequent intervals in each main run of pipe, except underground pipe, to facilitate removal and repair of pipe and appurtenances.
Gas lines: Unions shall be 150 pound, bronze to iron seat ground joint, Walworth No. 7712, or equal.

5. Pipe Sleeves, Pipe Hangers and Pipe Supports

a. Pipe sleeves, pipe hangers, and pipe supports shall be furnished and set, and contractor shall be responsible for their proper and permanent location, and approval thereof by Architect. Pipe will not be permitted to pass through footings, beams, or ribs, unless noted on the drawings.

b. Pipe sleeves shall be installed and properly secured in place at all points where pipes pass through masonry or concrete. All sleeves shall be fabricated from standard weight glavanized steel pipe. Pipe sleeves, except sleeves in footings, shall be of sufficient diameter to provide approvimately $\frac{1}{4}$ inch clearance around the pipe, and in the case of insulated pipe, $\frac{1}{4}$ inch clearance around the insulation. Pipe sleeves in footings shall be not less than 4 inches larger in diameter than pipe to be installed.
Sleeves shall be of sufficient length to pass through entire thickness of floor, beam, wall or footing through which pipe passes.
Sleeves through floors of toilets and laboratories shall extend $\frac{1}{2}$ inch above finished floor.
Space between pipe and sleeves in outside walls shall be sealed with hot poured mastic.

c. Pipe Hangers, Inserts and Supports: Hangers shall be forged steel clevis type and provided with turn-buckles or other approved means of adjustment. Chain, strap, perforated bar or wire hangers will not be permitted. Horizontal suspended cast iron pipe shall be supported at 5 foot intervals. Distance between supports of horizontal suspended steel piping shall be as per following schedule:

| Nominal Pipe Size, In. | 3/4" and smaller | 1¼" and 1" | 1½" | 2" | 2½" | 3" | 4" |
|---|---|---|---|---|---|---|---|
| Maximum Span, Ft. | 8 | 9 | 10 | 12 | 13 | 10 | 15 |

Buried piping shall be supported throughout its entire length. Vertical piping shall have heavy wrought iron clamps or collars spaced not more than 12 feet apart. It shall be supported at base on brick pier, poured concrete block or in other manner subject to approval of Architect.

Inserts for pipe supports shall be provided in concrete and masonry where necessary. Inserts in concrete shall be placed before concrete is poured.

6. Floor, Wall and Ceiling Plates

Where uncovered exposed pipes pass through floor or finished walls, they shall be fitted with chromium-plated cast brass plates on chromium-plated pipe, or with cast iron or steel plates on ferrous pipe. Plates shall be large enough to completely close the hole around the pipes and shall be square, octagonal, or round, with the least dimension not less than 1½ inches larger than the diameter of the pipe. Plates shall be secured in an approved manner.

7. Clean-Outs

An easily accessible cleanout shall be provided at foot of each vertical soil or waste stack, and where indicated on the drawings. Distance between clean-outs in horizontal soil lines shall in no case exceed 50 feet for lines 4 inches or smaller and 100 feet for lines larger than 4 inches. Clean-outs shall be of same nominal size as pipe in which they are installed, up to 4 inches and not less than 4 inches for larger rises. A clean-out shall consist of a long sweep ¼ bend or one or two 1/8 bends with a cast brass ferrule and countersunk trap screw cover caulked into bell of fitting. Clean-outs in finished floors shall be flush type similar to Josam Y-110.

8. Traps

Each fixture requiring connection to drainage system shall be equipped with trap having water seal of not less than 2 inches nor more than 4 inches, and placed as near fixture as possible. Each fixture trap, except those in combination with fixtures in which trap seal is readily accessible, shall have an acessible brass trap screw of ample size, protected by the water seal. Provided that a portion of trap can be completely removed for cleaning purposes, no trap screw is required. All traps shall be set true with respect to their water seals. Traps installed on bell and spigot pipe shall be cast iron and those on threaded pipe shall be recess drainage pattern.

9. Flashing

Vent pipes and stack vents shall be flashed and made watertight at the roof with 4 pound sheet lead. Flashings shall extend not less than 8 inches from the pipe in all directions. Flashings for pipe shall be extended up pipe a minimum of 6 inches at which point a threaded standard cast iron or malleable iron recess roof coupling shall be installed to form a counter flashing or rain guard.

10. Air Chambers

Air chambers shall be provided on hot and cold water supplies to each plumbing fixture. Air chamber shall consist of 18 inch length of vertical capped pipe of same diameter as branch supply and shall be concealed in wall as near fixture as possible.

11. Water Valves

1. Gate Valves: Gate valves 2 inches nominal size and larger shall be iron body, bronze mounted, inside screw, rising stem, solid wedge, screwed pattern, 150 pound, Walworth No. 709, or equal. Gate valves smaller than 2 inches nominal size shall be bronze, one piece wedge, rising stem, screwed pattern, Walworth No. 2, or equal.
2. Globe Valves: Globe valves on steel pipe shall be bronze screwed pattern, renewable disc, Walworth No. 95, or equal. Valves on cold water lines shall have medium hard rubber discs, and hard rubber discs on hot water lines.
3. Check Valves: Check valves shall be bronze horizontal swing check valves, screwed pattern fitted with leather faced disc, Walworth No. 407, or equal.

12. Sillcocks

Shall be freeze proof wall hydrants, Josam No. Y-200, or equal.

13. Hose Bibbs Hot and Cold Water @ Garbage Room

American Standard B-1671 3/4 inch hose and lock shield faucets.

14. Gas Valves

Gas valves $1\frac{1}{4}$ inches and larger shall be iron body, lubricated plug type, Walworth No. 1796, or equal. Service stops 1 inch and smaller shall be brass gas stops with square head, Crane No. 272, or equal.

15. Grease Trap

Furnish and install grease trap in location shown on drawing. Grease trap shall be constructed of reinforced concrete in accordance with Division 26 of these specifications.

16. Fixtures

a. General: References made herein to figure numbers are American Radiator and Standard Sanitary Corporation numbers unless otherwise indicated. Use of these figure numbers is for purpose of indicating style and quality of fixtures to be furnished and does not exclude furnishing fixtures of other approved manufacturers which are of equal quality and similar in design. Generally all fixtures, except water closets, shall have water supply above rim. Fixtures with supply discharge below rim shall be equipped with backflow preventers. Angle stops, straight stops, stops integral with the faucets, or concealed type of lockshield loose-key pattern stops for concealed supplies shall be furnished and installed with all fixtures. Exposed traps and supply pipes for all fixtures and equipment shall be connected to the rough piping system at the wall unless otherwise specified hereinbefore or as covered by outfit number.

Items specified herein are types of fixtures to be furnished and installed complete with all trimmings and fittings, unless otherwise specified under the item. The item numbers correspond with the fixture numbers noted on the drawings.

b. Finish of Fittings and Trimmings: Except where noted otherwise hereinafter the exposed piping, fittings and trimmings shall be chromium-plated or nickel plated brass with polished bright surfaces.

c. Fixture Connections: Where space conditions will not permit use of standard fittings in conjunction with cast iron floor flanges, special short-radius fittings shall be provided. Connections between earthenware fixtures and flanges on soil pipe shall be made absolutely gastight and watertight with a closet setting compound conforming to requirements of Federal Specifications HH-C-536 or with gaskets conforming to requirements of Federal Specifications HH-G-116. Rubber gaskets or putty will not be permitted for this connection. Closet bolts shall be not less than $\frac{1}{4}$ inch in diameter and shall be equipped with china bolt caps and washers. Fixtures with outlet flanges shall be set proper distance from floor or wall to make a first-class joint with closet setting compound or gasket and fixture used.

d. Lavatories-Hot and Cold - Item #1: P-3869 20 x 18" hexagon cast iron Acid Resisting Lavatory, wall hanger; B-702-A Re-Nu combination faucet with Spring-Flo aerator, B-820 3/8" supplies with wheel handle stops, B-960 $1\frac{1}{4}$" cast brass P-trap with clean-out. (@ Grooming Room, Home Economics, and @ Kitchen).

e. Lavatories-Cold Water - Item #2: P-3865 20 x 18" hexagon cast iron Acid Resisting Lavatory, wall hangers; B-1020 Re-Nu high spout faucet, B-757 faucet hole cover, B-759 drain plug, B-820 3/8" supplies with wheel handle stop, B-960 $1\frac{1}{4}$" cast brass P-trap with clean-out plug.
@ all Boys' and Girls' Toilets, Men's Lounge, Principal's Toilet, Women's Lounge, Library Work Room, Industrial Arts Shop Toilet, Boiler Room. No. 12 concealed chair support @ Library Work Room.

f. Flush Valve Water Closet 15" High - Item #3: F-2223 Madera elongated closet, genuine vitreous china full siphon jet with $1\frac{1}{2}$ inch top supply; fitted with #110-FYV flush valve (Sloan Royal), #9900 Church white Mol-Tex seat, check hinge, closet floor flange, flange bolts and china caps. (@ all places on plans where water closets are indicated, including Boiler Room).

g. Wall Hung Urinal&Flush Valve - Item #4, 18" High; Item #5, 16" High: F-6200 Washal size 18" genuine vitreous china wall type urinal with extended shield, 2 inch back outlet and top supply; fitted with #186 Sloan Royal flush valve, lag screws. (@ all places on plans where urinals are indicated).

h. Service Sink-Hot and Cold Water - Item #6: P-7705 size 22 x 18" Argo Acid Resisting cast iron enameled roll rim service sink with 12 inch integral back, wall hanger, fitted with P-7798 enameled inside P-trap, B-194-HE hose end faucet, B-997-E plug, chromard finish metal rim guard. (@ Employees' Toilet in Kitchen).

i. Service Sink Cold Water Only - Item #7: P-7705 size 22 x 18" Argo Acid Resisting cast iron enamel ware roll rim service sink with 12 inch integral back, wall hanger; fitted with P-7798

enameled inside P-trap, B-1141 hose end faucet, B-757 faucet-hole cover, B-997-B metal plug, chromard finish rim guard. (@ all Janitor's Closets, Industrial Arts Shop, Vocational Agricultural Shop Toilet).

j. Drinking Fountain - Item #8: P-8475 size 30 x $14\frac{1}{4}$" Fulton Two Bubbler Acid Resisting cast iron drinking fountain with painted brackets; fitted with angle stream anti-squirt bubblers, Re-Nu self-closing valve, supply pipe with loose key stop, strainer, B-960 $1\frac{1}{4}$" cast brass P-trap. (@ Corridor Second Floor Classroom Wing, Corridor First Floor Classroom Wing, Lobby Classroom Wing, East Covered Walk Training Wing).

k. Electric Water Cooler - Item #9: Frigidaire 18" x 18" x 40" high, with one bubbler -- existing in possession of City (@ Cafetorium).
Contractor shall make plumbing connections to electric water cooler as shown on drawings.

l. Sink-Hot and Cold Water - Item #10: For sink specifications see Division 15. Sink shall be fitted with B-872-ST Re-Nu faucet with hose and spray, soap dish, Spring-Flo, B-989 strainer, B-981-A $1\frac{1}{2}$" continuous waste, B-960 $1\frac{1}{2}$" P-trap with clean-out. (@ all Kitchen Units in Home Economics Rooms).

m. Clinic Sink-Hot and Cold Water - Item #11: Standard plate P-6586 size 60 x 25" Royal H stess Line Acid Resisting double compartment double drainboard sink with 4" integral back, wall hangers; fitted with B-872-S Re-Nu combination swinging spout faucet with lift off soap dish, Spring-Flo aerator, B-989 hand lift strainer B-981-B $1\frac{1}{2}$" continuous waste, B-960 $1\frac{1}{2}$" cast brass P-trap. #ASC 60 x 25" - D Deluxe white enamel steel cabinet with four drawers and three openings.

n. Sink Without Drainboard-Cold Water Only - Item #12: P-6800 cast iron, acid resisting enamel, wall hanger, B-989 strainer, B-960 $1\frac{1}{2}$" x $1\frac{1}{2}$" P-trap, one B-1150 $\frac{1}{2}$" single faucet. (@ Art Room, Biology Room, Physics-Chemistry Laboratory).

o. Shower-Cold Water Only - Item #13: B-264 Re-Nu $\frac{1}{2}$" self-closing valve, ceiling supply, 4" cast brasshead with removable face. (@ Physics-Chemistry Laboratory).

p. Floor Drain - Kitchen and Toilet Rooms - Item #14: Josam Series 300 with cast-iron P-trap below.

q. Floor Drain-Boiler Room and Garbage Room - Item #15: Josam Series 5020 with cast-iron P-trap below.

r. Pot Sink-Hot and Cold Water: 7' 6" stainless steel three-compartment sink, each compartment 30" x 27" x 15" deep, existing in possession of City. Provide two B-910-S exposed type Re-Nu double faucets, swinging spout, Spring-Flo, lift-off soap dish, P-trap. (@ Kitchen). Contractor shall make plumbing connections to pot sink as shown on drawings.

s. Side Arm Water Heater, Electric, for Pot Sink: Furnish and install on wall with brackets as detailed on drawings. Heater shall be Chromalox N. NWH-362 with AR thermostat, insulated jacket with 6 KW single phase, 208 V. Pipe inlet and outlet to rinse compartment of pot sink, with 1 inch pipe coupling welded into sink compartment.

t. Vegetable Sink-Hot and Cold Water: For sink specifications see Division 15. Sink shall be fitted with one B-910-S exposed type Re-Nu double faucet, swinging spout, Spring-Flo, lift-off soap dish, P-trap. (@ kitchen). Contractor shall provide fittings and make plumbing connections to vegetable sink as shown on dwgs.

u. Pre-Rinse Sink Special Fitting Hot and Cold Water: For sink specifications see Division 15. Sink shall be provided with gooseneck faucet with squeeze spray, 38" high with chromard plated trigger type valve and 2" spray head, mounted on 26" long flexible tubing hanging down from gooseneck and chromard plated finger assembly attached to gooseneck to hold sprayhose when not in use. #A-510. (@ kitchen). Contractor shall provide fittings and make plumbing connections to pre-rinse sink as shown on dwgs.

v. Electric Counter Height Water Heater: 30 gallon table top electric hot water heater in Clinic as shown on drawings. Tank shall be welded, heavily galvanized copper bearing steel, designed for working pressure of 127.5 psig, and provided with a magnesium alloy rod of proper size for anodic protection. Tank shall have drain valve at bottom, threaded cold water inlet and hot water outlet. Heater shall have a thermostatically controlled 1500 watt heating element, for 208 volts. Tank shall be insulated with not less than 2 inches of glass wool insulation and entire unit enclosed in a steel jacket with baked enamel finish. Hot water heater shall be Jackson No. TTE-30-S, or equal.

w. Booster Water Heater, Gas, for Dishwasher: Furnish and install on top of dishwasher with piping to heat rinse water for dishwater. Heater shall be A. O. Smith Company's Burkay Model 180, natural gas-fired, with a capacity of 84 g.p.h. through a 40° F temperature rise, with adjustable thermostat. Provide drafthood and "Transite" flue through roof with weather-proof cap. Watts No. 40XL P. & T. relief valve set @ 125 psi and 210° F pipe discharge through exterior building wall. Heater shall be equipped at factory with magnesium anode rod. Gas burner and pilot shall be equipped with 100% safety shut-off and shall be fully automatic. (@ kitchen).

x. Gas Hot Water Heater - Home Economics Room: Furnish and install. Water heater shall have a storage capacity of 85 gallons and a recovery rate of 126 gph through a 100° F temperature rise. It shall be factory equipped with a magesium anode, thermostatically controlled gas burner and pilot light with 100% safety shut-off. Burner shall be suitable for burning natural gas. Heater shall be installed complete with draft hood, "Transite" flue piping, and weatherproof cap. Water heater shall be Crane Company R 85, or equal.

y. Dishwasher, Gas Water Heater (Kitchen), Gas Steam Tables, Instructors' Science Desks, Students' Science Tables, Washer, Dryer, Ranges, and Oven: This equipment will be furnished by City. Contractor shall provide plumbing connections to it as shown on drawings.

17. Filling Existing Wells

Contractor shall fill and seal seven existing dug wells. Wells are located on building site as shown on Plot Plan, Drawing No. A-1. Method of sealing wells shall conform to requirements of Section A1-13.2 of AWWA "Standard Specifications for Deep Wells".

Lower portion of well shall be filled with clean sand or gravel to a depth approximately 2 feet above water table level. Upper portion shall be filled to grade with well compacted dry clay.

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# DIVISION 19

# HEATING

## 19-A SCOPE

Materials: Pipe, Fittings, Joints, Pipe Sleeves, Floor and Ceiling Plates, Unions, Pipe Supports and Anchors, Steam Traps, Gate Valves, Globe Valves, Radiator Valves, Check Valves, Strainers, Finned Pipe Radiation, Cabinets, Unit Heaters, Boiler Assembly, Smokestack, Blow-Off Tank, Boiler Feed Pump and Condensate Receiver, Insulation, Electric Wiring.

Installations: Complete Low Pressure Steam, Gravity Return, Gas Fired Heating System Including Boiler and its Appurtenances; Condensate Return, Blow-Off Gas, and Vent Piping; Valves, Traps, Automatic Controls and Instruments; Blow-Off Tank; Insulation, Combustion Adjustments and Completion Tests; Electric Wiring, (Refer to Division 21).

## 19-B INCIDENTALS

Refer to A.I.A. General Conditions and Supplements.

1. Cooperation: See Article 47, Supplements to General Conditions.

2. Cutting and Patching: See Article 43 of General Conditions.

3. Excavation and Backfill: All excavations required for installtion of heating equipment shall be kept open until material has been inspected, tested, and accepted. Adequate precaution shall be taken to insure proper compactness of backfill around equipment without damage to such equipment.
   Pipe trenches shall be backfilled in thin layers to twelve (12) inches above tope of piping with clean earth which shall not contain stones, boulders, cinder-fill, or other materials which would damage piping or cause corrosive action. Mechanical devices such as bulldozers, graders, etc. may then be used to complete backfill to grade. Fill shall be properly compacted.
   Any bedrock or large boulders encountered in excavating for heating equipment that requires blasting will be considered extras but small boulders or rotton stone will not be so considered.

4. Storage of Materials: See Article 72 of Supplement to General Conditions.

5. Architect's Approval: See Article 53 of Supplement to General Conditions.

6. Shop Drawings: See Article 71 of Supplement to General Conditions.

7. Cleaning Up: See Article 44 of General Conditions.

8. Specification Arrangement: See Article 50 of Supplement to General Conditions.

9. Codes, Permits and Inspections: Entire installation of heating system shall conform to standards of National Board of Underwriters. Boiler shall be manufactured in compliance with latest Low Pressure Steam Heating Boiler Code of A.S.M.E. and requirements of A.S.A. Complete boiler assembly shall bear Underwriters' Laboratories label. Contractor shall obtain all necessary permits and inspections and shall deliver to Architect, free of charge before work is completed, all certificates of inspection issued by inspecting authorities.

10. Guarantee: See Article 60 of Supplement to General Conditions.

11. Tests: Piping shall be tested after installation and before any insulation has been applied. Gages, thermostatic traps and other apparatus which may be damaged by test pressure shall be removed before tests are made. After defects which develop are rectified, the piping shall be retested until it shows no defect and is absolutely tight.
Steam and condensate lines shall be tested with air, oil, or water at 50 psig.
Gas lines shall be tested with air at 50 psig using soapy water to detect leaks.
All equipment and apparatus necessary for tests shall be furnished by contractor. All defects disclosed by tests shall be rectified by contractor at no additional cost. Tests shall be made under direction and subject to approval of Architect.
All heating system equipment shall be subject to operating tests after installation as determined by Architect to demonstrate that equipment complies with requirements specified.
Boiler shall be hydrostatically tested at 60 psig.

12. Instruction Booklets, Etc.: See Article 79 of Supplement to General Conditions.

## 19-C & 19-D MATERIALS AND INSTALLATIONS

1 a. Pipe -- Materials
Steam supply, condensate return, and blow-off piping above ground shall be standard weight, black steel conforming to A.S.T.M. "Standard Specifications for Welded and Seamless Steel Pipe, A120-47".
Underground steam supply, condensate return and blow-off piping shall be standard weight galvanized steel.
Drain, vent, and gas piping shall be standard weight black steel.

1 b. Pipe -- Installation
Unless otherwise indicated, steam and condensate mains shall grade uniformly in direction of flow approximately 1" in 40'. Horizontal runouts shall be pitched back to mains approximately 1" in 4'.
Unions shall be provided at suitable locations to facilitate dismantling of piping, valves and equipment.
Changes in size of piping shall be made with reducers or reducing fittings. Eccentric reducers shall be used in steam and return mains to bring bottoms in line and prevent pockets.
Gas lines shall grade toward drip pockets, 1" in 40'.

Steam supply laterals shall be taken out of top of mains or at an angle of 45° above centerline of mains unless otherwise noted. Provision for thermal expansion and contraction of pipe lines shall be made by "dog legs", offsets and swing joints as shown on drawings. Equipment and materials shall be inspected upon delivery at job and shall be tested by contractor as specified hereinafter. Piping shall not be buried, concealed, painted or insulated until it has been inspected, tested and approved.
Before being installed, inside of all piping shall be clean, and before final connections are made to apparatus, interior of all piping shall be washed out thoroughly with water and all foreign material removed.

2. Fittings

In exposed pipe lines 2" and smaller shall be standard banded malleable iron, screwed pattern, 150# WSP.
In exposed pipe lines 2½" and larger shall be cast iron or steel, flanged pattern, 125# or 150# ASA standard.
Welding fittings shall be butt or socket weld type, forged steel, standard weight.
Welding fittings shall be used in all concealed pipe lines and may be used in lieu of screwed and flanged fittings in exposed lines.

3. Joints

In pipe lines shall be as per following schedule:

| Description of Line | Size | Joint |
|---|---|---|
| Exposed | 2" and smaller | Screwed or welded |
| Exposed | 2½" and larger | Flanged or welded |
| Buried or concealed | All sizes | Welded |

Screw joints shall be made up with cylinger oil and graphite or graphite pipe joint compound. Piping shall be made free of fins and burrs.
Flange joints shall be made with cast iron or steel, plain faced smooth finished flanges, 125# or 150# ASA standard, screwed, slip-on, or welding neck type. Screwed flanges shall be attached by screwing pipe through flange and accurately refacing both pipe and flange afterward.
Flange joint gaskets shall be asbestos composition, 1/16" thick, full face type.
Welded joints shall be by metal arc or gas welding process. Chill or insert rings shall not be used. Welding shall be done by welders who have passed the required tests conducted by the Hartford Steam Boiler Inspection Company, or otherwise demonstrate their qualifications as welder to satisfaction of Architect. Each weld shall be numbered and marked to identify work done by each welder.
All welds in underground lines shall be coated with coal tar enamel after weld has been tested and approved.

4. Pipe Sleeves, Floor and Ceiling Plates

Standard weight glavanized steel pipe sleeves shall be provided for all pipes passing through floors, beams, walls and partitions. They

shall be of sufficient length to pass through entire thickness of floors, beams, walls or partitions and shall be secured in position. Sleeves in concrete shall be placed before concrete is poured. Sleeves through floors of toilets and laboratories shall extend $\frac{1}{2}$" above finished floor.

Pipe at sleeves shall be fitted with floor, wall and ceiling plates which shall be one piece pattern and shall be held to pipes by set screws. Plates in toilets shall be heavy nickel-plated brass. All other plates shall be cast or malleable iron, painted.

Space between pipe and sleeves in outside walls shall be sealed with hot poured mastic.

5. Unions

Unions of pipe 2" and smaller shall be heavy pattern malleable iron with brass to iron seat, ground joint. For pipes $2\frac{1}{2}$" and larger, standard 125# cast iron or 150# steel companion flanged unions with gaskets shall be used.

6. Pipe Supports and Anchors

Exposed steam and condensate mains shall be supported as shown in details on drawingsl

Insulated piping shall be provided with a pipe-covering protection saddle at each support. Saddles shall be steel and shall be secured to pipes by spot welding.

Inserts and sleeves for pipe supports and anchors shall be provided in concrete and masonry where necessary. Inserts in concrete shall be placed before concrete is poured.

Distance between supports shall be in accordance with following schedule:

| Nominal Pipe Size, In. | 3/4" and Smaller | $1\frac{1}{4}$" & 1" | $1\frac{1}{2}$" | 2" | $2\frac{1}{2}$" | 3" | 4" | 5" | 6" and Larger |
|---|---|---|---|---|---|---|---|---|---|
| Max. span, ft. | 8 | 9 | 10 | 12 | 13 | 10 | 15 | 16 | 18 |

Finned pipe radiation and supply and return lines under it shall be supported from wall brackets as shown on drawing.

Anchors shall be provided at locations and in accordance with details shown on drawings.

7. Steam Traps

Drip station and unit heater traps shall be inverted bucket, float and thermostatic, or impulse type. Finned pipe radiation traps shall be thermostatic, bellows type.

Trap bodies shall be cast iron, wrought steel or brass. Bucket and float valve mechanism of inverted bucket traps shall be stainless steel, bronze or brass. Bellows of thermostatic traps shall be adequately protected against damage from water hammer and shall have renewable seat and thermostatic element.

Internal working parts of traps shall be accessible for maintenance without having to break pipe connections.

Orifice size of traps shall in all cases be of sufficient size to handle the air and condensate of the equipment which the trap is serving with a maximum pressure drop across the trap of 2 psi.

8. Gate Valves
   Gate valves shall be single wedge disc type with rising stems. Those 2½" and larger shall be cast iron, bronze trimmed, 125# WSP, flanged ends, O.S.& Y. Those 2" and smaller shall be bronze or brass, screwed in or screwed union ring bonnet, 150# WSP with screwed ends.

9. Globe Valves
   Globe valves shall be bronze or brass, rising stem, plug or composition disc, 150# WSP. Globe valves shall be installed so that when closed the pressure will be under the disc or plug. Globe valves in steam lines shall be installed with stems horizontal.

10. Radiator Valves
    Radiator valves shall be permanently, spring loaded packed type with non-rising steam, cast brass bodies, bakelite handle, and composition disc. Valves shall go from open to closed position in less than one full turn. They shall be suitable for steam pressure up to 50 psig and shall be equipped with an indicator showing exact degree of valve opening. Stem packing shall be graphite coated asbestos rings, or approved equal.

11. Check Valves
    a. Swing Check Valves: Bronze or brass, 125# WSP, with brass disc and screwed ends. They shall be equipped with suitable means of preventing disc from sticking in open position.
    b. Ball Check Valves: Bronze or brass, 125# WSP, horizontal type, with steel ball and screwed ends.

12. Strainers
    Strainers shall be provided ahead of all steam traps as shown on drawings. They shall be simplex "Y" type, with cast iron bodies and removable brass baskets having perforation sizes as recommended by the trap manufacturer. Screen shall be removable without disturbing piping.

13. Finned Pipe Radiation
    Wall hung radiation shall be complete with finned pipe elements, cabinets and hangers.

    Elements shall be made of black steel pipe or tubing with steel, aluminum or copper fins sized and spaced to give Mbh as shown on drawings with steam in element at 2 psig and 65° F entering air temperature. Length and size of fins on pipe shall be sufficient to give total Mbh output shown on drawing.

    Cabinets in spaces other than Library, Conference Room, and Lobby shall be sloping top type with top slope having approximately a 30° angle to horizontal. Cabinets shall be constructed of sheet steel not lighter than 18 gage with outlet grille stamped in sloping top, open bottom and removable end panels. Cabinets shall be braced and

reinforced as necessary to provide stiffness. Suitable means shall be provided at ends to enable two or more cabinets to be joined together without the use of sheet metal screws or bolts. Cabinets shall be bonderized and painted inside and out at factory with one prime coat of paint. Outside finish coat shall be applied after installation.

Finned pipe and cabinets shall be supported from wall with hanger strips, sliding cradles and steel strap brackets as shown on drawings. Sliding cradles shall be of a design that will permit free movement of finned pipe during expansion and contraction without bending fins. Maximum distance between supports shall be six feet.

Library and Conference Room cabinets shall be John J. Nesbitt, Inc. "open storage units", 32" high, with linoleum top and sill line and base grilles, or approved equal.

Finned pipe radiation, steam supply and return mains shall be installed behind "storage units" as shown in detail on drawing. Linoleum top shall be applied with heat and water resistant adhesive furnished by manufacturer and shall be of color and pattern as selected by Architect.

Adjustable fill-in sections shall be used as indicated on drawing to complete cabinet ensembles to walls. Fill in sections shall be suitable for cutting and assembly in field. All room exposed parts shall be finished to match standard cabinets and fronts shall be removable for access to valves and piping.

Lobby convector cabinets shall be flat top type as shown in detail on drawing. Their construction otherwise shall conform to sloping top cabinets as described above.

### 14. Unit Heaters

Unit heaters shall be horizontal, propellor fan type with minimum Mbh output ratings as shown on drawings.

Output ratings shall be based on 2 psig saturated steam supply and 65° F entering air temperature. Maximum outlet temperature shall be 135° f.

Casings shall be fabricated from sheet steel not lighter than 20 gage.

Units shall be suspended from ceiling by hanger rods or straps, independently of supply and return piping. Outlets shall be equipped with louvre fin diffusers having individually adjustable blades capable of both horizontal and vertical adjustment of discharge air stream.

Unit heater motors shall be totally enclosed, dust tight, sized to drive fan continuously without overloading. They shall be wound for 110 volt, 60 cycle, single phase current and shall be equipped with built-in thermal overload protection.

Motor bearings shall be packed, permanently sealed type requiring no field lubrication.

Unit heaters shall be controlled by line voltage, room type, manually adjustable 45-80° F range thermostats. They shall be mounted on walls under unit heaters approximately six feet off floor as shown on drawings. At bottom setting of thermostats fan motors shall stop and at top setting run continuously regardless of ambient air temperature.

15. Boiler Assembly

a. General: Boiler assembly shall be low pressure steam, gas fired, automatic package type complete with gas burner, fittings and automatic controls.

Boiler and its appurtenances shall be completely factory assembled on a structural steel base.

It shall be stamped and approved by a recognized steam boiler inspection and insurance company for 15 psig steam working pressure. Boiler shall have not less than 5.0 square feet of heating surface as defined by latest A.S.M.E. Boiler Code, per rated boiler horsepower.

b. Capacity: Boiler shall have nominal rating of 80 boiler horsepower and shall be capable of generating continuously 2,760# of steam per hour from and at 212° F.

c. Fuel: Boiler burner shall be suitable for firing with natural and propane-air mixture gases of following characteristics:

| | Natural Gas | Propane-Air Mixture |
|---|---|---|
| Specific Gravity | .6 | 1.27 |
| Heat Content | 1000 Btu/cf | 1350 Btu/cf |

Propane-air mixture gas will be used in combination with natural gas on certain occasions for shave peak purposes.

d. Operational Test: Complete boiler assembly shall be subjected to firing test for minimum of four hours on specified fuel prior to shipment from the factory. Architect shall be furnished with three copies of firing test data.

e. Combustion Adjustment: Boiler burner shall be adjusted after completion of installation to give smokeless combustion with minimum of $CO_2$ content in leaving combustion gases of 13%. Measurement of $CO_2$ content in gases shall be made with portable chemical $CO_2$ indicator of an approved type.

Smoke rating of combustion gases shall not be greater than No. 6 as measured by the Bacharach-Shell smoke indicator.

f. Supervision of Start-Up: Contractor shall furnish services of representative of boiler manufacturer for period of one day to supervise start-up and instruct owner's personnel in operation and maintenance of equipment furnished.

g. Efficiency: Boiler efficiency at specified continuous rated output shall be not less than 80%.

h. Boiler: Multi-pass horizontal, steel, scotch marine type. It shall be provided with adequate hand holes, manholes, blowdown, water column, safety valve and steam connections as required by A.S.M.E. Code.

All refractory shall be factory installed. Combustion space shall be provided with spring loaded pressure relief door.

Flue gas outlet shall terminate in 12" diameter round collar for connection to smoke pipe.

j. Blowdown Valves and Piping: Blowdown valves shall be provided for each bottom blowdown connection one boiler. They shall be slow opening gate type, Crane No. 422, or equal. Material, pressure rating and size of valves shall conform to A.S.M.E. Code

requirements. Each blowdown connection from boiler to valves shall be completely piped.

k. Safety Valves: Side outlet, nozzle type, spring loaded with cast iron body, bronze nozzle and disc, screwed inlet and outlet.
They shall be factory set to blow at 15 psig and of sufficient number and size to provide ample relieving capacity in accordance with A.S.M.E. Boiler Code.

l. Automatic Water Feeder, Low Water Cut-Off and Alarm: Shall be provided with boiler and installed at water column tappings as shown on drawing.
Water feeder unit shall have cast iron float chamber, built in water screen, stainless steel water valve, and cut-off and alarm electrical switch. Valve mechanism shall be effectively isolated from heat of boiler. Unit shall be designed for 36 psig steam and 150 psig water pressure.
Water valve of unit shall start to open when boiler water level has dropped to 2" below normal. If level continues to drop and reaches $2\frac{1}{2}$" below normal, water valve shall be completely open and the electrical switch shall make contact causing burner to stop and alarm bell to ring.
Body of water feeder unit shall be provided with three (3) brass try cocks, 3/8" size, with moulded composition wheels.

m. Gage Glass: Complete with brass shut-off valves, gate valve blowdown, brass guards, and pyrex glass.
Minimum pressure standard of gage glass shall be 100 psig.

n. Pressure Gage: Pressure gage shall be furnished with boiler and mounted thereon through siphon and shut-off cock. It shall be bourdon tube type with bronze tube, $4\frac{1}{2}$" dial, and 0-30 psig range.

o. Stack Thermometer: Stack thermometer shall be provided in smoke stack in location where it can be conveniently read. It shall be dial type, $3\frac{1}{2}$" size, 100-950° F range, American 6360AH-59, or approved equal.

p. Insulation: Boiler shell shall be insulated with 85% magnesia or approved equal, $1\frac{1}{2}$" minimum thickness, with protecting metal jacket.

q. ForcedDraft Fan: Boiler unit shall be equipped with motor driven forceddraft fan of sufficient size to supply entire air requirements for complete combustion at maximum continuous boiler rating. Forceddraft fan motor shall be drip proof, repulsion induction or capacitor start-induction run type wound for 208 volt, 60 cycle, 3 phase current. Motor shall be of sufficient size to drive fan continuously under all conditions of operation without overloading. Motor bearings shall be permanently sealed type requiring no field lubrication. Motor starter shall be normally open, enclosed magnetic, across-the-line type with thermal overload protection and low voltage release.

r. Gas Burner: Modulating atmospheric type suitable for burning gases as described in Section 19C & 19D-15c. Burner shall be complete with main gas control valve, manual firing valve, safety shut-off valve, automatic electric-gas pilot ignition, pilot pressure regulator, pilot solenoid valve, manual shut-off cock, pressure gage and connecting piping. Entire burner assembly shall

be approved by American Gas Association for firing with LP gases. Burner shall be capable of releasing 3,350,000 Btu/hr. with 3" $H_2O$ manifold pressure, minimum $CO_2$ content in stack gases of 13%, no CO, no smoke or soot, and no flame impingement on boiler heating surfaces. Burner heads shall have flame retention tips and shall be adequately designed to prevent flash back in mixing tubes. Burner shall be designed so no air passes through any part of it when it is no in operation.

Main gas control valve shall be can operated piston type with cast iron body, bronze trim, screwed connections and triangularly ported valve.

Manual firing valve shall be all brass, lever operated, plug cock type with graduated dial and pointer, and screwed ends.

Safety shut-off valve shall be quick closing manual reset type with cast iron body, bronze trim and screwed ends.

Pressure gage shall be diaphragm type with 2½" dial, 0-10" $H_2O$ range, brass diaphragm and enamel finished steel case. Shut-off cock shall be furnished with gage.

Manual shut-off cock shall be lubricated plug type, 125# pressure standard, with semi-steel body and screwed connections. It shall have two ¼" IPS pilot outlets tapped into body -- one on either side of plug.

Main pressure regulator shall be spring loaded diaphragm type with cast iron body, synthetic composition diagphragm and built-in pressure relief valve factory set to open when downstream pressure exceeds 1 psig. Top diaphragm chamber shall have bottom vent with screwed outside opening. Regulator shall be sized for handling natural gas as described in Section 17c under following conditions:

| | |
|---|---|
| Maximum flow | 3,350 cfhr. |
| Inlet pressure | 6" $H_2O$. |
| Outlet pressure | 3" to 5" $H_2O$. |

Pilot gas pressure regulator shall be ¼" size, spring loaded diaphragm appliance type. It shall be installed in pilot line upstream from solenoid valve and maintain a constant discharge pressure adjustable from 3" to 5" $H_2O$.

t. Automatic Combustion and Temperature Control: Boiler assembly shall include complete automatic combustion control system including fuses, motor starters, transformers, disconnect switches, program controller, automatic electric ignition, flame sensing element, modulating pressure controller, limit thermostat, limit switches, modulating main gas valve, modulating air supply motor and alarm buzzer. Combustion and temperature control equipment shall be wired as shown in Wiring Diagram on Drawing No. H3 and as described in Section 19C & 19D-20.

Program controller shall start burner in low fire position by first starting forced draft fan. After an interval of approximately 30 seconds, ignition shall go on and solenoid pilot valve open to cause combustion to proceed.

With combustion established, burner operation shall continue under control of modulating pressure controller. If combustion

does not establish, flame sensing element shall stop draft fan, close solenoid pilot and main safety shut-off valves, and cause alarm bell to ring. Program controller and main safety shut-off valves must be manually reset before another starting cycle can be initiated and alarm bell cut off.

Programming system shall be Combustion Control Corporation "Fireye FP-2", or approved equal.

Pressure controller shall be modulating protentiometer type with 0-15 psig range and one to six psi differential adjustment. Controller shall be set to maintain from 6 minimum to 8 psig maximum operating steam pressure. It shall be Minneapolis-Honeywell L91B, or approved equal.

Thermostat in Principal's Office shall shut down boiler if temperature reaches set point. It shall be line voltage, series 40 manually adjustable type, mounted on wall approximately 5' 0" above floor, with 55-85° F range and adjustable differential factory set at $1\frac{1}{2}$° F. Thermostat shall be Minneapolis-Honeywell T44A, or approved equal.

16. Smoke Pipe

Smoke pipe shall be fabricated from black sheet steel not lighter than 16 gage and shall be completely air tight, all-welded construction. It shall be painted two coats on the inside and one coat on the outside, with Sherwin Williams "Al Silver Brite No. 55", or approved equal.

17. Blow-Off Tank

Reinforced concrete construction in accordance with dimensions and details shown on Drawing No. H3.

18. Boiler Feed Pump and Condensate Receiver

Simplex type complete with bronze fitted centrigual pump, welded copper bearing steel tank, float switch, motor and motor controls.

Pump shall be started and stopped by float switch responding to level of condensate in receiver.

Pump receiver unit shall have a minimum rated capacity of 10,000 EDR steam radiation when operating against 20 psi pump discharge head.

Pump motor shall be squirrel cage induction type wound for 208 volt, 60 cycle, 3 phase current. Motor shall be of sufficient size to drive pump continuously under rated conditions without overloading. It shall be equipped with magnetic starter having thermal overload protention and low voltage release.

Motor bearings shall be permanently sealed type requiring no field lubrication.

19. Insulation

Steam lines in Boiler Room and other places shown on drawings shall be insulated with 1" thick Fiberglas PF pipe insulation, or approved equal.

Condensate lines in Boiler Room and other places shown on drawings shall be insulated with $\frac{1}{2}$" thick Fiberglas Low Pressure pipe insulation, or approved equal.

Smoke pipe from boiler connection to brick stack shall be insulated with 2" thick Fiberglas PF pipe insulation with 4-ounce factory applied canvas jacket, or approved equal.

Condensate receiver tank shall be insulated with 1" thick Fiberglas Duct Insulation, or approved equal.

All valves, flanges and fittings in insulated lines shall be insulated, except screwed and flanged unions.

Boiler shall be insulated as described in Section 19C & 19D-15p.

Insulation of steam and condensate lines shall be provided with 4-ounce, factory applied canvas jacket.

Segments of pipe insulation shall be secured in place by pasted canvas lap and at least two (2) metal bands. Fittings and valves shall be covered with "Fiberglas Aerowrap" insulating cement to align with sections on adjacent pipes. Insulating cement shall be cased in 4-ounce pasted canvas jacket made secure with bands on each outlet of valve or fitting. Insulation on valves shall cover valve body up to joint between body and bonnet.

Boiler blow-off, vent and drain lines, safety valve discharge, steam and condensate lines in inside spaces outside Boiler Room (unless otherwise indicated on drawing), and steam traps shall not be insulated.

20. Electric Wiring

All electric wiring shown on wiring diagram and necessary to put equipment described in this section of specifications in operating condition. Service for heating equipment will be supplied and roughed-in under Electrical Division 21.

Wiring equipment outside Boiler Room shall be run in conduits furnished and installed in Electrical Division 21.

All wiring shall be done in accordance with requirements of Electrical Section.

* * *

## DIVISION 20

## VENTILATING

## 20-A SCOPE

Materials: Range Hood, Kitchen Exhaust Fan, Ductwork, Kitchen storage exhaust fan, Gravity vent, Roof exhaust fans, Home Economics exhaust fans, Grills.

Installations Specified in this Division: Range Hood, Kitchen exhaust fan, ductwork, kitchen storage exhaust fan, gravity vent, roof exhaust fans, home economics exhaust fans, grilles.

Installations Specified in Other Divisions: Electrical connections to all exhaust fans -- Refer to Division 21.

## 20-B INCIDENTAL

Refer to the A.I.A. General Conditions and the supplements.

1. Cooperation: See Article 47 of the Supplements to the General Conditions.

2. Manufacturers, Trade Names, Catalogue Numbers: See Article 53 of the Supplements to the General Conditions.

3. Shop Drawings: See Article 71 in the Supplements to the General Conditions. Submit for all items in this Division.

4. Specification Arrangement: See Article 50 in the Supplement to the General Conditions.

## 20-C MATERIALS

1. Range Hood

As detailed on the Drawings.
Welded construction, 16 guage steel.
Grease filters to be 20" x 20" x 2".
Air maze greasetop filter cells with frames, grease trough, handles and spring latches by Air Maze Corporation.

2. Kitchen Exhaust Fan

As manufactured by American Blower Corporation (whose catalogue numbers appear below).
Exhaust Fans NAFM ratings and construction.
Shall be #182 FW utility set, clockwise top horizontal discharge complete with 1 H.P. 1/60/230 volt motor, hood cover over motor and drive, adjustable pitch V Belt Drive, cleanout door, drain in bottom of fan scroll, automatic shutter on fan discharge. Capacity 3600 CFM, 3/8" RP.
Shall have magnetic starter, pushbutton mounted in cover, Allen Bradley

Bulletin 709 Form 1 and Minneapolis Honeywell Firestat #L 477 A with manual reset to cut off fan in case of fire.

3. Ductwork

Exhaust system ducts and ducts for gravity vents to be minimum 22 guage galvanized iron.
Size as shown on the drawings.

4. Kitchen Storage Exhaust Fan

As manufactured by American Blower Corporation (whose catalogue numbers appear below.)
Shall be #10DA12 Ventura fan, constant speed 1150 RPM, capacity 1000 CFM.
Automatic shutter on discharge side.
Manual switch with thermal overload element for 1/60/115 volt current.

5. Gravity Vents

Shall be standard 8" diameter gravity vents made of 24 guage galvanized metal.

6. Roof Exhaust Fans

Fans as manufactured by Jenn-Air Products Co. Size #70CR.
Capacity 230 CFM, 1/4" RP, 1550 RPM, 1/25 HP.
Provide 17" square curb cap for curb mounting.

7. Home Economics Exhaust Fans

Fans as manufactured by Jenn-Air Products Co. Size #148 CR,
Capacity 1980 CFM, 1/8" RP, 860 RPM, 1/4 HP. Provide 2'-11" square curb cap for curb mounting.
Provide GE-#CR1061 switch with thermal overload element.

8. Grilles

For exhaust systems and gravity vents shall be "Sight-Tite" core with "EF" frame as manufactured by Barber-Colman Company.
Size as called for on the Drawings.

## 20-D INSTALLATIONS

1. Range Hood

Install as shown on the Drawings.
Anchor to angle supports with 3/8" ø machine bolts 12" on centers on three sides of hood.

2. Kitchen Exhaust Fan

Install as shown on the Drawings.
Fan to have flexible asbestos connector between fan and ductwork.
Follow manufacturers recommendations for installing.
See Division #21 for electrical connections.

### 3. Ductwork

Install where shown on Drawings.
Provide all necessary straps, etc. to anchor securely in place.

### 4. Kitchen Storage Exhaust Fan

Install as shown on the Drawings.
Anchor securely to metal frame specified in Division 10.
Anchor automatic shutter to outside of metal frame with screws on all sides. Provide Neoprene gasket between shutter and frame on all 4 sides.
See Division 21 for Electrical Connections.

### 5. Gravity Vent

Install where shown on the drawings.
Anchor securely to roof deck.

### 6. Roof Exhaust Fans

Install on roof where called for on the drawings.
Install on 2" x 8" wood curbing similar in detail to that shown on the drawings for kitchen exhaust fan.
Fan to be wired through light switch in room fan serves.
See Division 21 for electrical connections.

### 7. Home Economics Exhaust Fans

Install one each on roof over Rooms #143 and #149 as shown on the drawings.
Install on 2" x 8" wood curbing similar in detail to that shown on drawings for Sky Domes.
See Division #21 for electrical connections and switches.

### 8. Grilles

Install where called for on the Drawings. Anchor securely to underside of roof decking, or to metal ductwork.
Installation to be neat in appearance.

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# DIVISION 21

## ELECTRICAL

## 21-A SCOPE

Materials: Distribution Panelboards, Raceways, Boxes and Fittings, Conductors, Wall Switches, Receptacles, Cover Plates, Lighting Fixtures, Lamps, Program Control Clock Apparatus and Signaling Device, Fire Alarm Devices, Centralized Sound Apparatus.

Installation: Service Entrance, Powerand Lighting System, Emergency Wiring System, Telephone Raceway System, Program Control and Clock System, Fire Alarm System, Centralized Sound System, Connection to Kitchen Equipment, (Refer to Division 15), Connection to Exhaust Fans, (Refer to Division 20), Connection to Heating Equipment, (Refer to Division 19).

## 21-B INCIDENTALS

Refer to A.I.A. General Conditions and Supplements.

1. Alternates: See Division 23.

2. Electrical Service: Service will be 120/208 volt, 3 phase, 4 wire.

3. Cooperation: See Article 47, Supplements to General Conditions.

4. Cutting and Patching: See Article 43 of General Conditions.

5. Storage of Materials: For delivery and protection of materials see Article 72 in Supplements to the General Conditions.

6. Permits and Regulations: See Article 11 of General Conditions. All work shall be done in accordance with the latest rules and regulations of the National Electrical Code and all state and local codes and ordinances.

7. Architect's Approval: See Article 53 of Supplement to General Conditions.

8. Shop Drawings: See Article 71 of Supplement to General Conditions. Submit for lighting fixtures, panelboards, program control clock apparatus and signaling devices, fire alarm devices, public address apparatus also, in general, for any devices offered for substitution.

9. Operation and Maintenance: See Article 79 of Supplement to General Conditions.

10. Cleaning Up: See Article 44 of General Conditions.

11. Specification Arrangement: See Article 50 of Supplement to General Conditions.

12. Guarantee: See Article 60 of Supplement to General Conditions.

## 21-C MATERIALS

1. Distribution Panelboards
   a. The Main Distribution Panelboard: Surface mounted dead front type having 400 amp., 3 pole fusible switch in mains at bottom of cabinet for connection to 120/208 volts, four wire, s/n, three phase 500 MCM service with three pole fusible switch units in branches as listed below. Fusible switch units shall be similar and equal to Square D Company Saflex type. Fuse mains @ 350 amp.

| Circuit No. | Frame Size | Fuse Size | Feeder Size | Service |
|---|---|---|---|---|
| 1 | 30 | 30 | 8 | Boiler Room Equipment |
| 2 | 30 | 20 | 12 | Kitchen Exhause Fan |
| 3 | 30 | 30 | 8 | Lighting Panel "F" |
| 4 | 60 | 40 | 8 | Kitchen Side-Arm Heater |
| 5 | 100 | 90 | 2 | Lighting Panel "A" |
| 6 | 100 | 90 | 1 | Lighting Panel "B" |
| 7 | 100 | 70 | 4 | Lighting Panel "C" |
| 8 | 100 | 70 | 2 | Lighting Panel "D" |
| 9 | 100 | 70 | 2 | Power Panel "G" |
| 10 | 100 | 90 | 1 | Power Panel P-2 |
| 11 | 200 | 150 | 2/0 | Power Panel P-1 |

   b. Lighting Distribution Panelboards: Dead front circuit breaker type with lugs only in the mains at bottom of cabinet for connection to 120/208 volt, three phase, four wire grounded neutral service, similar and equal to Trumbull Electric Company type NLTQ. Overall width of cabinet shall not exceed 15 inches.
   Panel "A", flush type with 38-15 ampere, single pole breakers.
   Panel "B", flush type with 32-15 ampere, single pole breakers.
   Panel "C", flush type, circuits 1 through 16 shall be 15 ampere single pole breakers and circuits 17 through 28 shall be 20 ampere single pole breakers.
   Panel "D", surface type with 24-15 ampere, single pole breakers.
   Panel "F", surface type with 8-15 ampere, single pole breakers.
   Panel "G", surface type, circuits 1 through 16 shall be 15 ampere single pole breakers and circuits 17 through 28 shall be 20 ampere single pole breakers.
   c. Emergency Distribution Panelboard: Surface type with 4-15 ampere, single pole breakers same as lighting panelboards listed under "b" above except a 50 ampere circuit breaker shall be provided in the mains at bottom of cabinet.
   d. Power Distribution Panelboards: Surface mounted dead front type with lugs only in the mains at bottom of cabinet for connection to 120/208 volt, three phase, four wire grounded neutral service, with three pole fusible switch units in branches as listed below, similar and equal to Square D Company Saflex type.
      1. Power Distribution Panelboard P-1 shall have lugs in main for #2/0 feeders;

| Circuit No. | Frame Size | Fuse Size | Branch Feeder Size |
|---|---|---|---|
| 1 | 30 | 15 | 12 |
| 2 | 30 | 15 | 12 |
| 3 | 30 | 15 | 12 |
| 4 | 30 | 30 | 10 |
| 5 | 30 | 15 | 12 |
| 6 | 30 | 30 | 10 |
| 7 | 30 | 30 | 10 |
| 8 | 30 | 15 | 12 |
| 9 | 60 | - | (Spare) |
| 10 | 60 | 50 | 6 |
| 11 | 30 | 15 | 12 |
| 12 | 30 | 15 | 12 |

2. Power Distribution Panelboard P-2 shall have lugs in main for # 1 feeders and shall have eight branch circuit switches all of which shall have 30 ampere frames fused for 15 amperes and lugs for size #12 branch feeders.

e. All panelboards shall be mounted in general purpose code gage steel cabinets with hinged locking doors, all locks keyed alike. Cabinets shall be finished with a primer coat and at least one coat of gray enamel or lacquer. Provide fuses as listed.

2. Raceways

a. Rigid conduit and E.M.T. shall be of new standard weight, mild steel tubing, smooth inside and out with galvanized or sherardized finish. Conduit sizes as shown on drawings are minimum and in no case shall the size be less than $\frac{1}{2}$". If concrete encased, 3/4" min.

b. Surface metal raceway shall be similar and equal to "wiremold" with durable enamel finish. Sizes shall be as shown on drawings.

c. Flexible steel conduit shall be made of tough, single strip steel galvanized inside and out, similar and equal to that manufactured by General Electric Company. Sizes shall match the rigid conduit to which it is connected.

3. Boxes and Fittings

a. Junction boxes shall be sherardized or galvanized 4" square pressed steel 1$\frac{1}{2}$" deep with a blank coverplate unless noted otherwise. These boxes shall also be used with a shallow device cover for mounting receptacles in cafeteria.

b. Conduit fittings shall be made of non rusting metal or alloy or shall be sherardized or galvanized and shall have tapered threaded hubs and shall be similar and equal to "condulet" fittings as manufactured by Crouse-Hinds Company complete with gaskets and sheet metal covers.

c. Fittings for surface metal raceway shall be similar and equal to wiremold fittings as manufactured by the Wiremold Company.

d. Pressed steel outlet boxes, 4" octagonal, 1$\frac{1}{2}$" deep, sherardized or galvanized shall be used for mounting the following;

(1) Covered walkway lighting fixtures.
(2) Kitchen lighting fixtures.
(3) Boiler room lighting fixtures.

(4) Corridor lighting fixtures.
(5) Shop area lighting fixtures.
(6) Keyless Porcelain sockets.
(7) Sound system speakers.
(8) Exit lights.
(9) Clock outlets.
(10) Fire alarm horns.
(11) Indoor program bells.

d. Wiremold fixture boxes similar and equal to those manufactured by the Wiremold Company shall be used for suspending lighting fixtures in classrooms, cafeteria, office and all such areas supplied by Wiremold type raceway.

e. Wiremold box #5745 or equal as manufactured by the Wiremold Company shall be used to mount the following:

(1) Wall switches, surface mounted, except in boiler room shops and kitchen area. Use a gang box for more than one switch.
(2) Fire alarm drill switch.

f. Pressed steel sectional device boxes, sherardized or galvanized shall be used for mounting the following:

(1) Receptacles except in boiler room, kitchen, cafeteria, shops and sewing machine receptacles in Home Ec rooms.
(2) Wall switches shown recessed in pipe chase walls.
(3) Telephone outlets except in kitchen.

g. Conduit box with threaded hubs similar and equal to Crouse-Hinds type FS condulet shall be used for mounting the following:

(1) Wall switches, surface mounted, in boiler room, kitchen and shops.
(2) Receptacles, exposed or surface mounted, in boiler room, shops, kitchen and sewing machine receptacles in Home Ec rooms.
(3) For terminating stub-ups at shop equipment.
(4) Telephone outlet in kitchen.

h. Cast conduit box 4" with threaded hub in rear similar and equal to Crouse-Hinds Cat. #SHEA 1 with gasket Cat. #Gask 202 shall be used for mounting outside floodlights of the swivelier type.

4. Conductors

a. Conductors shall not be smaller than #12 A.W.G. except fixture wire and certain auxiliary wiring as noted herein and on the drawings.
b. #10 A.W.G. and smaller shall be solid copper of 98% conductivity with single braid insulation covering.
c. #8 A.W.G. and larger shall be strandedcopper of 98% conductivity with double braid insulation covering.
d. Fixture wiring shall be no smaller then #16 A.W.G. stranded copper with type AF heat resistant insulation.

e. Microphone cable shall be two conductor #18 stranded tinned copper with cotton wrapped color coded rubber insulation cabled with braid and tinned copper shield, with rubber outer jacket similar and equal to Belden #8428.
f. For general use conductors shall have type R, 600 volt insulation.
g. For open, outdoor wiring type WP, 600 volt insulation shall be used.
h. Wiring underground or encased in concrete slabs or other masonry shall have type RW, 600 volt insulation except service entrance and panelboard feeder conductors.
i. Service entrance and panelboard feeder conductors shall have type RH, 600 volt insulation.
j. All wire shall be delivered to the job in complete coils with original wrapping plainly marked indicating wire size, type of insulation, manufacturer's name, and shall bear the underwriter's label of approval.

5. Wall Switches (Local Lighting)

Switches shall be specification grade, "T" rated, with heavy composition base and brown bakelite handle.

a. Single pole toggle switches for controlling all incandescent loads and for fluorescent loads having three or less lighting fixtures shall be 10 ampere rating similar and equal to Hubbell 9801 or Bryant 4961.
b. Single pole toggle switches for controlling fluorescent loads having four or more lighting fixtures shall be 20 ampere rating similar and equal to Hubbell 9805 or Bryant 4966.
c. Three-way switches shall be 10 ampere rating similar and equal to Hubbell 9803 or Bryant 4963.
d. Four-way switches shall be 10 ampere rating similar and equal to Bryant 5864.

6. Receptacles

Receptacles shall be specification grade, with brown molded bakelite base, 15 amperes, 125 volt rating, duplex with double T slots similar and equal to Hubbell 9260 or Bryant 9260.

7. Cover Plates

a. Stainless steel plates 0.04" thick with "chrome-X" or satin finish shall be used for the following devices except when the device is mounted in a "FS" or "FD" type conduit fitting:
   (1) Wall switch plates, (1 gang), Hubbell or Bryant #97071. Use the equivalent gang plate when more than one switch is installed.
   (2) Receptacle plates, Hubbell or Bryant #97101.
   (3) Telephone outlet plates, Hubbell or Bryant #97181.
b. Sheet steel, non corrosive covers shall be used when device is mounted in a "FS" or "FD" type conduit fitting.

8. Lighting Fixtures

| Type | Description |
|---|---|
| A | Commercial fluorescent, continuous row consisting of three |

| Type | Description |
|---|---|
| | 8 foot sections joined, each section having 45° x 45° shielding and louvering, for two 75 watt, 96" slimline tubes complete with wiring, sockets, high powerfactor ballast and 12" suspension, stems. The whole assembly shall be similar and equal to Gibson type MP-45, Cat. #45-2842-24. |
| AA | Same as type A except continuous row consisting of two 8 foot sections joined, similar and equal to Gibson type MP-45, Cat. #45-2842-16. |
| B | Same as type A except continuous row consisting of four 8 foot sections joined, similar and equal to Gibson type MP-45, Cat. #45-2842-32. |
| BA | Same as type A except continuous row consisting of five 8 foot sections joined, similar and equal to Gibson type MP-45, Cat. #45-2842-40, with 18" stems. |
| BB | Same as type A except continuous row consisting of six 8 foot sections joined, similar and equal to Gibson type MP-45, Cat. #45-2842-48. |
| C | Same as type A except continuous row consisting of one 8 foot section and one 4 foot section joined, similar and equal to Gibson type MP-45, Cat. #45-2842-12. |
| D | Same as type A except consists of only one 8 foot fixture similar and equal to Gibson type MP-45, Cat. #45-2842. |
| E | Same as type A except consists of only one 4 foot fixture for two 40 watt slimline tubes similar and equal to Gibson type MP-45, Cat. #45-2442. |
| F | Commercial incandescent with plated statuary bronze finished ceiling hood and opal diffusing glass globe, similar and equal to Perfeclite Company Cat. #0314 for 200 watt lamp. |
| H | Incandescent, side wall bracket type, keyless with outlet, white porcelain, for 60 watt lamp, similar and equal to Alabax Cat. #AL-2382. |
| K | Industrial incandescent, ceiling hood type, with porcelain enameled steel reflector for 100 watt lamp, similar and equal to Benjamin RLM Dome reflector Cat. #14075S and keyless outlet box fitting Cat. #1406. |
| L | Incandescent lampholder, box mounting, procelain, with pull chain and cord for 100 watt lamp, similar and equal to Bryant Cat. #288. |
| LA | Incandescent lampholder, box mounting, porcelain, for 100 watt lamp, similar and equal to Bryant Cat. #5228. |
| M | Vaporproof incandescent, cast iron base for outlet box mounting with screw globe and cast aluminum guard, for 200 watt lamp, similar and equal to Russell and Stoll Cat. #6336. |
| N | Adjustable two-socket incandescent lampholder for use with PAR-38, 150 watt floodlamps similar and equal to Swivelier Company Cat. #2547 with two Swivalier #945-4 weatherproofing lamp gaskets. |
| NA | Adjustable socket incandescent lampholder for use with a PAR-38, 150 watt floodlamp similar and equal to Swivelier Company Cat. #57 with a Swivalier #945-4 weatherproofing lamp gasket. |

| Type | Description |
|---|---|
| NB | Adjustable socket incandescent lampholder for use with R-40, 150 watt spotlamps similar and equal to Swivelier Company Cat. #547L. |
| O | Commercial incandescent with pendant type swivel hood plated statuary bronze finish and opal diffusing glass globe, similar and equal to Perfeclite Company Cat. #3614 for 200 watt medium base lamp. |
| P | Commercial incandescent with pendant type swivel hood plated statuary bronze finish and opal diffusing glass globe, similar and equal to Perfeclite Company Cat. #3716 for 300 watt medium base lamp. |
| R | Industrial incandescent, ceiling hood type, RLM Glassteel diffuser with reflector and opal glass globe for 200 watt lamp, similar and equal to Benjamin Cat. #26304. |
| S | Industrial incandescent with procelain enamel steel angle reflector and 90° angle hood for 75 watt lamp, similar and equal to Benjamin Cat. #S-1821-L. |
| T | Incandescent shallow dome yard light with porcelain enameled steel reflector for 100 watt lamp, similar and equal to Benjamin Cat. #1914. |
| U | Incandescent exit light with statuary bronze plated base for side wall outlet box mounting with white globe and red permanent ceramic letters 4½" high on both sides for 40 watt lamp, similar and equal to Perfeclite Cat. #W-7127. |
| V | Adjustable 12 socket incandescent lampholder, disappearing footlamp type, five feet long with wood trim and wood swinging cover including twelve individual "Alzaked" reflectors with twelve heat resistant colored glass roundels for 100 watt lamps as follows: Four (4) red, Four (4) yellow, and Four (4) clear or natural. The sockets shall be wired with a separate circuit for each color, and shall be arranged alternately red, yellow and clear. Each circuit shall have a mercury automatic disconnect switch. Similar and equal to Major Equipment Company, Inc., Type D-104. |
| W | Adjustable 8 socket incandescent lampholder consisting of eight adjustable sockets mounted on 12" centers on an eight foot metal wireway strip for use with R-40, 150 watt floodlamps, similar and equal to Neo-Ray "roto-strip" fixture No. 13-8 listed in Cat. #5208. |

### 9. Lamps

Fluorescent slimline lamps shall be similar and equal to Westinghouse "white", size and wattage to suit fixtures as indicated in the lighting fixture schedule. Incandescent lamps, except special types, shall be general service, inside frosted, medium base and wattage to agree with lighting fixture schedule. Floodlamps and spotlamps shall be reflector type, PAR-38 and R-40 as indicated in the lighting fixture schedule.

### 10. Program Control Clock Apparatus and Signaling Device

a. The program signal control mechanism shall be arranged for 115 volt supply, synchronous motor operated, single circuit for con-

trolling 115 volt-AC signal devices, with a manual signal circuit pushbotton and signal silencing switch, 24 hour 7 day type arranged to permit a different schedule each day of the week for operating signals at one minute intervals and shall be automatic, requiring no routine adjustments once the various schedules have been set-up.

b. Time indicating "pilot" clock shall be either electrically or mechanically coupled to the program instrument with a common control for setting both units. The clock may be mounted either on the program mechanism enclosure or it may be separately mounted.

The above units "a" and "b" shall be similar and equal to Edwards program instrument Cat. #1930 with pilot clock Cat. #1972-12" and with reset switch unit Cat. #1900. (Reset switch shall set all clocks and the program device simultaneously).

c. Secondary clocks, single face, shall be surface indoor type with 12" dial similar and equal to Edwards Cat. #1972-12".

d. Secondary clocks, double face, shall be for side wall mounting, indoor type with 12" dials, similar and equal to Edwards Cat. #1978-12".

e. Program signaling device for outdoor installation shall be a 10" vibrating bell, weatherproof, with metal guard for use on 115 volts-AC and shall have a cast metal outlet box with threaded hub complete with rubber gasket similar and equal to Edwards Cat. #340-10" complete with Cat. #349 box.

f. Program signaling device for indoor installtion shall be a 6" vibrating bell for use on 115 volts-AC similar and equal to Edwards "Adaptabel" Cat. #340-6".

g. NOTE: The program control mechanism, time indicating clocks and program signaling devices shall all be of the same manufacturer.

11. Fire Alarm Devices

a. Alarm stations shall be manually operated, hammerless, break glass, non coded, non supervised, open circuit type for surface mounting, similar and equal to Edwards Cat. #228.

b. Alarm signals shall be grill type horns for surface mounting, extra loud, especially designed for use in schools, 115 volt-AC rating similar and equal to Edwards Cat. #374.

c. Drill switch shall be lock type with red painted cover plate engraved with lettering "FIRE DRILL", similar and equal to Edwards Cat. #MD-5168.

12. Centralized Sound Apparatus

a. A two channel console type centralized sound apparatus to perform the following functions:

(1) Reception of radio broadcast.

(2) Reproduction of phonograph records and transcriptions.

(3) Microphone pickup at central control location and cafetorium.

(4) Transmission of above programs to any or all rooms in which speakers are located and arranged so that two programs may be transmitted simultaneously.

(5) Two-way communication with individual rooms from a separate intercommunication channel without interrupting program to other rooms.

(6) Emergency announcements from control console to all speaker-equipped rooms.

(7) A speaker and a meter shall be provided formonitoring programs.

b. The control unit shall be housed in a steel cabinet, either free standing or table mounted, (if table mounted the table must be included). Cabinet shall be properly ventilated and shall have a durable baked enamel or laquer finish. The following features shall be included:

- (1) One radio receiver designed for high fidelity reception of FM and AM broadcast.
- (2) One phonograph turntable for reproducing recordings or transcriptions at 78, 45 or 33 1/3 r.p.m. Turntable shall be capable of playing any size record up to a 16" transcription.
- (3) One power amplifier for each channel delivering 25 watts of power output each with less than 5% harmonic distortion.
- (4) One monitor or intercommunication speaker.
- (5) One volume indicator meter.
- (6) Room selector switches having four positions: Communication, Off, Channel "A", and Channel "B". Each switch shall be identified with the room which it serves.
- (7) Receptacle for connecting local microphone.
- (8) All other controls necessary for proper operation such as channel control switches, on-off switch, volume control, bass and treble controls, transfer switch, etc. Similar and equal to Webster Electric model SS-271C.

c. Microphones:

- (1) One desk type local announce microphone, crystal type for frequency response of 60 to 8,000 c.p.s. with detachable base for desk or hand use and at least 6 feet of cable with plug for connection to console. Similar and equal to Webster Electric model SS-290-A.
- (2) One floor stand microphone, moving coil type with frequency response from 40 to 10,000 c.p.s. with 25 feet shielded, rubber-jacketed cable with plug for connection to microphone receptacle. Stand height shall be adjustable from 33" to 58". Base shall have sufficient weight for stability. Similar and equal to Webster model SS109A with model S4549 stand.

d. Loudspeakers:

- (1) Room speakers shall be 8" permanent magnet type dynamic, with cabinets for surface wall mounting over outlet box. Cabinet shall be finished in a neutral flat paint suitable for use as is, or as an undercoat when repainted. Similar and equal to Webster Electric model SS107-2A.
- (2) Cafetorium speaker shall be 12" permanent magnet type in bass reflex cabinet for wall mounting, similar and equal to Webster Electric model SS108A.

e. Microphone receptacle (cafetorium stage), 3 prong similar and equal to Webster Electric model S4414F mounted on an "FS" type conduit box cover plate.

f. Antennas, folded dipole with mast and 300 ohm transmission line for FM similar and equal to Webster Electric model SS289. A separate antenna system shall be provided for AM reception as per sound manufacturer's recommendations.

NOTE: The foregoing sound apparatus shall all be of the same manufacturer.

## 21-D INSTALLATION

1. Service Entrance

   The local utility company will furnish a four spool rack and a meter base to be installed by the contractor as shown on drawings. The utility company will bring in overhead service conductors and attach them to the rack. The utility company will furnish and also install outdoor type current transformers on this rack. The contractor shall provide a proper drip loop in each conductor between the service rack and weatherhead and remove the insulation for a space of ½ inch at the low point of loop.

2. Power and Lighting System

   a. Distribution panelboards shall be installed where shown on the drawing. A typewritten directory shall be installed on the inside of each panel door indicating the loads connected to each circuit.

   b. Surface metal raceway or "Wiremold" shall be installed as shown on the drawings for exposed branch circuit and auxiliary wiring in classroom wing except overhead horizontal corridor runs and for exposed branch circuit and auxiliary wiring in cafetorium, Home Ec and Vocational Agricultural classroom.

      Thinwall tubing or E.M.T. may be installed for exposed branch circuit and auxiliary wiring in boiler room, overhead horizontal corridor runs and in kitchen and shop areas. Also for exposed empty telephone raceway.

      Rigid conduit shall be installed for service conductors, feeders and sub-feeders, empty telephone raceway or any other runs embedded in concrete and for exposed outside branch circuit and auxiliary runs such as for covered walkways and milling area.

      Flexible metal conduit shall be used for making up short flexible connections, approximately 18", to such items as exhaust fans, unit heaters, water heaters and boosters and boiler room apparatus.

      Exposed raceways shall be installed parallel to or at right angles to building lines and shall be supported at intervals not exceeding eight feet. In some cases exposed raceway shall be run through holes in beams, provided for this purpose, as shown on drawings. Appropriate galvanized clamps and bolts shall be used for supporting raceway on walls or ceilings. Conduit clamps shall be attached to concrete block or brick walls by means of lead expansion shields. Wood plugs will not be allowed. Ceiling clamps shall be attached to the flange of bulb tees with machine screws by drilling and tapping the members.

      Threads shall be clean cut and the proper length so that the conduit ends will butt in couplings. Running threads shall not be used. Burrs and turned edges at ends of conduit shall be removed to prevent damage to conductors. Open ends of conduit shall be securely plugged during construction to prevent access of water and trash.

      When conduit risers are to be concealed in brick or concrete block walls, they shall be put in place before the walls are built and this contractor shall be responsible for the accurate setting of all outlets thus served.

Conduit runs left empty for future telephone use and extension of fire alarm system shall have a #16 gage iron pull-wire installed. Ends of such conduit shall be securely capped. Conduit shall not be installed less than 6" from flue pipe or uncovered steam pipe and no less than three inches from outer covering of insulated stem pipe.

Rigid conduits entering cabinets, pull boxes, junction boxes or outlet boxes, shall be secured with galvanized lock nuts and bushings. Connectors and couplings for electrical metallic tubing shall have hexagonal heads.

c. Surface mounted boxes and devices shall be attached to concrete block or brick walls by means of lead expansion shields. Wood plugs will not be allowed. Ceiling mounted boxes et cetera shall be attached to the flange of bulb tees with machine screws by drilling and tapping the members.

d. Receptacle outlets shall be flush mounted, 18" above floor, except as noted otherwise on drawings.

e. Wall switches shall be surface mounted except where mounted on pipe chase. Install switches 6' -0" above floor and to clear trim or corners by 4".

f. Lighting fixtures shall be installed as follows:

| Type | Mounting Arrangement | Mounting Ht. (Above Floor) |
|---|---|---|
| A thru B | Pendant on 12" stems | Fixed by stem length |
| BA | Pendant on 18" stems | Fixed by stem length |
| BB thru E | Pendant on 12" stems | Fixed by stem length |
| F | On outlet box | Ceiling mounted |
| K | On outlet box | Either ceiling mounted or beneath roofst'l |
| L,LA & M | On outlet box | Ceiling mounted |
| N | Side wall on box | 8' -0" |
| NA | Side wall on box | 11' -0" |
| NB | Side wall on box | 7' -0" |
| O & P | Pendant on 24" stem | Fixed by stem length |
| R | On outlet box | Ceiling mounted |
| S | (See mounting detail for range hood light, Drawing E4) | |
| T | Side wall | 18" above door |
| U | Side wall on box | As noted on drawings. |
| V | Mounted flush in stage floor | See Drawings A3 and D4. |
| W | Fasten to ceiling | Ceiling mounted |

g. Conductors shall not be pulled into raceways until raceway and outlet boxes are in place. No lubricant other than soapstone may be used for pulling in wires.

3. Emergency Wiring System

The emergency distribution panelboard shall be connected to the line side of the main distribution panelboard. Conduit, wiring, boxes and fixtures shall be installed as shown on the drawings and as described under power and lighting system, item #2 above.

4. Telephone Raceway System
   This constitutes an empty conduit system which the telephone company will use, Conduit, boxes and outlets shall be installed as shown on the drawings and as described under power and lighting system, item #2 above.

5. Program Control and Clock System
   a. Conduit, boxes, wiring and outlets for this system shall be installed as shown on drawings and as described under power and lighting sytem, item #2 above. Outlets for secondary clocks shall be flush mounted 7' -9" above floor in corridors and 8' -0" elsewhere. Outlets f/indoor program bells shall be mounted 8' -0". above floor. Conductors shall be colorcoded black, white and red.
   b. Install the program signal control mechanism, clocks and signaling devices where indicated on the drawings and in compliance with the manufacturer's recommendations.

6. Fire Alarm System
   Conduit, boxes, wiring and outlets for this system shall be installed as shown on the drawings and as described under power and lighting system, item #2 above. Outlets for alarm horns shall be mounted 8'-0" above floor. The fire alarm devices shall be installed where indicated on the drawings and in compliance with the manufacturer's recommendations.

7. Centralized Sound System
   a. Conduit, boxes, wiring and outlets for this system shall be installed as shown on the drawings and as described under power and lighting system, item #2 above. Outlets for loudspeakers shall be mounted 8' -0" above floor. All conductors shall be identified in the junction box near the principal's office by tagging with correct room number.
   b. The centralized sound console, microphones, loudspeakers, antennas et cetera shall be installed where indicated on the drawings and in compliance with the manufacturer's recommendations.

8. Connection to Kitchen Equipment
   Refer to Division 15 and connect to all kitchen equipment requiring electrical energy. Branch circuits for this equipment are shown on the drawings.

9. Connection to Exhaust Fans
   Refer to Division 20 for description of fans and make electrical connections to same as shown on drawings and as described under power and lighting system, item #2 above.

10. Connection to Heating Equipment
    Refer to Division 19 and connect to all heating equipment requiring electrical energy. Branch circuits for this equipment are shown on the drawings. Thermostats and other apparatus shown on the heating drawings and called for in Division 19 shall be connected in compliance with the manufacturer's recommendations.

***

# DIVISION 22

# QUARRY TILE

## 22-A SCOPE

Materials: Quarry Tile, Setting Mortar, Grouting Cement.

Installation: Quarry Tile

## 22-B INCIDENTAL

Refer to the A.I.A. General Conditions and the Supplements.

1. Alternate: See Division 23 - Alternate #6.
2. Manufacturers, Trade Names, Catalogue Numbers: See Article 53 in the Supplements to the General Conditions.
3. Specification Arrangement: See Article 50 in the Supplements to the General Conditions.
4. Cooperation: See Article 47 in the Supplements to the General Conditions.
5. Delivery and Protection: See Article 72 in the Supplements to the General Conditions.
6. Samples: Submit sample of quarry tile.
7. Cleaning Up: See Article 44 in the General Conditions.

## 22-C MATERIALS

1. Quarry Tile

   Shall be "Carlyle Quarry Tile" by Mosaic Tile Company, "Ludowici Tile" by Ludowici-Celadon Company, or "Summitville Reds" by Summitville Tiles, Inc.
   Size 6" x 6" x 1/2" thick.

2. Setting Mortar

   1 part Portland and Slag Cement mixed equally and 3 parts sand.

3. Grouting Cement

   Shall be white.

## 22-D INSTALLATION

### Quarry Tile

Install where shown on the Drawings.
Depth of setting bed as shown on the Drawings.

Hand sprinkle thin coat of Portland cement uniformly over surface of setting bed immediately before setting tile.
Soak quarry tile in clean water before setting.
Set tile with 3/8" joints.
Firmly press tile into setting bed and tamp until exactly true and level with finish floor elevation.
Slope tile to drains in immediate area of floor drains only. (9" radius)
Fill in joints in quarry tile with setting bed mix.
Install quarry tile threshold where shown on the Drawings.
All joints in quarry tile floors shall be grouted with white grouting cement.
Clean thoroughly of dirt, mortar, stains or discolorations.
Use weak solution of muriatic acid and water if necessary.
Cover floors and thresholds with heavy building paper and boards to protect floor from damage.
At completion of job floor shall be clean and in perfect condition.

***

# DIVISION 23

## ALTERNATES

### 23-A ALTERNATE #1

Refer to Division 21, pages 8 and 9, and delete entirely paragraph 12 entitled "Centralized Sound Apparatus". Refer also to Division 21, page 12, and delete entirely sub-paragraph 7-b which deals with the installation of the sound console, microphones, loudspeakers and antennas.

### 23-B ALTERNATE #2

Substitute Grade "C" asphalt tile composition flooring for all Grade "D" asphalt tile composition flooring specified in Division 16.

### 23-C ALTERNATE #3

Refer to Division 21, page 8, and delete in entirety sub-paragraph 10-c and 10-d covering secondary clocks. Delete also the installation of all the above clocks where shown on drawings.

Substitute, for the above, conventional synchronous clocks with 12" dial similar and equal to General Electric Co. Cat. # 1H-1612 complete with clock outlets similar and equal to Hubbell Cat. #7707 and install in the following rooms only; lobby, cafetorium and kitchen. The remaining outlets indicated on the drawings for secondary clocks shall be provided with blank cover plates and the conductors shall be left with 12" leads coiled in the boxes for addition of clocks in future.
Refer to the typical wiring diagram for program clock and signal system as shown on drawing E-4 and delete the "red" color coded conductor serving regulated clocks except the pilot clock in the reception room which shall remain connected as shown.

### 23-D ALTERNATE #4

Omit all metal lockers specified in Division 15. Concrete curb and 2" x 4" wood sleeper to remain.

### 23-E ALTERNATE #5

Omit all "Sky Domes" specified in Division 6 and corresponding wood curbing specified in Division 11. Cover opening with decking as specified in Division 8 and roofing as specified in Division 9.

### 23-F ALTERNATE #6

Omit all quarry tile floors specified in Division #22.
Bring concrete slab up to typical floor elevation and install grease proof asphalt tile as specified in Division 16 in Room #165, asphalt tile Grade "C" in Room #163 and #164, and a steel trowel finish concrete floor in Rooms #114, #129, #207 and #217.

## 23-G ALTERNATE #7

Substitute all structural glazed facing tile in Rooms #163, #164 and #165 with equivalent width of concrete masonry units specified in Division 4. Paint concrete masonry units same as called for wall above wainscot on the drawings and in Division 17.
Paint 4" high base same as specified for painted bases in Division 17.

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# ADDENDUM NO. 1

ATHENS HIGH AND INDUSTRIAL SCHOOL (C)
ATHENS, GEORGIA

## CHANGES TO SPECIFICATIONS

1. Since issuance of the specifications entitled "Athens High and Industrial School (C)" the paragraphing and numbering of titles of the Supplementary General Conditions have been changed. References under the trade sections of the specifications to specific articles do not, therefore, agree with the new paragraph numbers and article numbers of the Supplementary General Conditions.

   Notice of this inconsistency is hereby given.

   In order to obviate any confusion, all bidders are reminded that all provisions of the General Conditions are applicable to all sections of the Specifications.

2. Division 4 - MASONRY, Section 4-C, MATERIALS, Paragraph 5, Mortar: In the last sentence of this sub-section, change the word "Othersise" to read "Otherwise".

3. Division 6 - MISCELLANEOUS METALS, Section 6-A, SCOPE, first paragraph, "Materials", and second paragraph, "Installations Specified in Other Divisions": Delete all references to "Steel Areaway walls".

4. Division 6 - MISCELLANEOUS METALS, Section 6-C, Materials, Paragraph 1, Metal Thresholds, first sentence: Change the phrase "double dip" to read "double lip".

5. Division 6 - MISCELLANEOUS METALS, Section 6-C, MATERIALS, Paragraph 2, Metal Toilet Partitions, 5th line from the top on page 2, change the phrase "22 sheets of steel" to read "2 sheets of steel".

6. Division 6 - MISCELLANEOUS METALS, Section 6-C, MATERIALS, Paragraph 16, Steel Areaway Walls: Delete this paragraph in its entirety.

7. Division 6 - MISCELLANEOUS METALS, Section 6-C, MATERIALS, title of paragraph 20: Change the word "Cove" to "Cover".

8. Division 6 - MISCELLANEOUS METALS, Section 6-C, MATERIALS, add new Paragraph 24 as follows:

   24. Cover for Trench in Floor of Physics-Chemistry Laboratory #127 Shall be 1/4" thick Jal-tread as manufactured by Jones and Laughlin Steel Corporation. Shall be in 4'-0" long sections and 11" wide. Sections under table legs shall be 12" long x 11" wide. Anchor plages to concrete slab as called for on the drawings.

9. Division 7 - SETTL WINDOWS, Section 7-C, MATERIALS, Paragraph 3, Window Screens, last sentence: Change this sentence to read as follows:

Provide for all ventilator sections in kitchen, kitchen storage room, kitchen toilet, cafeteria, and home economics room #143 and #149.

10. Division 10 - HOLLOW METAL DOORS, METAL FRAMES AND OVERHEAD DOORS: Delete all references to metal stools in Section 10-A, SCOPE, Section 10-C, MATERIALS, and Section 10-D, INSTALLATIONS.

11. Division 11 - CARPENTRY, Section 11-D, INSTALLATIONS, Paragraph 16, Fire Extinguishers: In the first sentence, change the phrase "Classrooms, corridors" to read "classroom corridors" by omitting the punctuation between those two words.

12. Division 14 - FINISH HARDWARE, Section 14-C, MATERIALS, Paragraph 3, Builder's Hardware List:

Sub-paragraph b.: Add "1 pr. Doors - 72: Covered Walk for Industrial Arts Shop RHRB - 3'0" x 6'10" x 1 3/4" HMMF"
Change quantity of hardware accordingly.

Sub-paragraph c.: Add "1 Door - 74: Exterior from Living Center - LHRB - 3'0" x 6'10½" x 1 3/4" HMMF"
"1 Door - 131: Exterior from Voc. Agric. Shop - LHRB - 3'0" x 6'10½" x 1 3/4" HMMF"
"1 Door - 132: Exterior from Ind. Arts Shop - LHRB - 3'0" x 6'10½" x 1 3/4" HMMF"
Change quantity of hardware accordingly.

Sub-paragraph c.: Delete entirely -
"1 Door - 42: Corridor from Storage - RHR - 3'0" x 6'6" x 1 3/4" MF".
Change quantity of hardware accordingly.

Sub-paragraph f.: Delete entirely -
"1 Door - 74: Exterior to Voc. Agric. Shop - LH - 3'0" x 6'10½" x 1 3/4" HMMF".

Add "1 Door - 130: Exterior to Home Economics - LH - 3'0" x 6'-10½" x 1 3/4" - HMMF".

Add door closer #102 for Doors #58 and #61 only.

Change quantity of hardware accordingly.

Sub-paragraph g.: Delete entire sub-paragraph.

Sub-paragraph i.: Delete entirely -
"1 Door - 40: Toilet Vest. to Girl's Toilet - RH - 3'0" x 6'6" x 1 3/4" - MF".
Change quantity of hardware accordingly.

Sub-paragraph k.: Add -
1 Door - 128: Vestibule to Boys' Toilet
RH - 2'-4" x 6'-10" x 1 3/4" MF

1 Door - 129: Vestibule to Girls' Toilet
LH- 2'-4" x 6'-10" x 1 3/4" MF

Door Closer #102 for Doors #82, #128 and #129 only.

13. Division 15 - EQUIPMENT, Section 15-C, MATERIALS, Paragraph 4, Home Economics Equipment (Rooms #143 and #149), Sub-paragraph f., Sink and Counter Tops:

Delete the second paragraph starting with the words "Kitchen sinks shall be.." and substitute therefor the following two paragraphs.

Each Center kitchen unit in Rooms #143 and #149 shall have American Standard #P-6585 sink, size 60" x 25", Royal Hostess line, cast iron, acid resisting enamel with 4" integral back. (Fittings as specified in Plumbing Division #18). Provide American Standard #525R and #525L union strips at each sink.

Left and right kitchen units in Rooms #143 and #149 shall have American Standard #P-6535 sink, size 54" x 25", Royal Hostess line cast iron, acid resisting enamel, with 4" integral back. (Fittings specified in Plumbing Division #18.) Provide American Standard #525R and #525L union strips at each sink for connecting case work counter tops to sinks.

14. Division 17 - PAINTING, Section 17-D, INSTALLATIONS, Paragraph 2, Interior Paint: In the first sentence, delete the phrase "2 coats of flat enamel paint" and substitute therefor the phrase "2 coats of flat or enamel paint".

15. Division 18 - PLUMBING, Section 19-C and 19-D, MATERIALS AND INSTALLATIONS: This Section is incorrectly numbered. Change the numbers 19-C and 19-D to 18-C and 18-D.

16. Division 18 - PLUMBING, Section 18-A, SCOPE: Add the words "Catch Basin" to the last sentence in both the first paragraph, Materials, and the second paragraph, Installations.

17. Division 18 - PLUMBING, Section 18-C and 18-D, MATERIALS AND INSTALLATIONS, Paragraph 16, Fixtures: All references to height of fixtures shall be deleted and new heights of fixtures from floor are substituted as follows:

| | |
|---|---|
| All Drinking Fountains | 36" from floor |
| All Water Closets | 15" from floor |
| All Urinals | 22" from floor (Except 24" in Teachers' Lounge) |
| All Lavatories | 30" from floor |

18. Division 18 - PLUMBING, Section 18-C and 18-D, MATERIALS AND INSTALLATIONS, Paragraph 16, Fixtures, Sub-paragraph x, Gas Hot Water Heater - Home Economics Room: In the third line of this sub-paragraph, delete the phrase "126 gph" and substitute therefor the phrase "134.4 gph"; in the next to the last line of this sub-paragraph, delete the phrase "Crane Company R-85" and substitute therefor the phrase "Combustion Engineering Co. H-85".

19. Division 18 - PLUMBING, Section 18-C and 18-D, MATERIALS AND INSTALLATIONS: Add new paragraph 18 as follows:

18. Catch Basin

Install in location and as per details on drawings.

20. Division 19 - HEATING, Section 19-C and 19-D, MATERIALS AND INSTALLATIONS, Paragraph 13, Finned Pipe Radiation: On Page 19-6, starting with the 12th line from the top of the page, appears sentence beginning "Library and Conference Room cabinets....". At the end of this sentence, insert the following new sentence: The cabinets in the Library shall have sill line radiation 28' long, one row, type A fin; the cabinets in the Conference Room shall have sill line radiation 8' long, one row, type A fin.

21. Division 20 - VENTILATING, Section 20-A, SCOPE: Add the words "Stage Roof Gravity Vent" to both the first paragraph, Materials and the second paragraph, Installations Specified in this Division.

22. Division 20 - VENTILATING, Section 20-C, MATERIALS, Paragraph 2, Kitchen Exhaust Fan: Delete this paragraph entirely and substitute the following:

2. Kitchen Exhaust Fan

As manufactured by American Blower Corporation (Whose catalog numbers appear below).
Exhaust Fans NAFM ratings and construction.
Shall be #245 G.V. utility set, counter clockwise top horizontal discharge, complete with 1½ H.P. 3/60/208 volt motor, hood cover over motor and drive, adjustable pitch V belt drive, cleanout door, drain in bottom of fan scroll, automatic shutter on fan discharge, capacity 6,000 CFM, ½" RP. Provide vibration dampener pads.
Shall have magnetic starter, pushbutton mounted in cover. Allen Bradley Bulletin 709 Form 1 and Minneapolis Honeywell Firestat #L 477 A with manual reset to cut off fan in case of fire.

23. Division 20 - VENTILATING, Section 20-C, MATERIALS, add following:

9. Stage Roof Gravity Vent

Shall be Swartwout Airmover Gravity Roof Ventilator, consisting of two units each 10'-0" wide x 7'-6" long x 2'-8" high, constructed of standard gauge galvanized steel complete with dampers and two damper operators, one for each section, which shall be provided with a counterweight and a 160° fusible link for each operator to permit automatic opening of the dampers in case of fire. Splice plates shall be provided to permit the connection of the two units to complete the total run of 15'-0".
Gravity vent as manufactured by the Swartwout Company, 18511 Euclid Avenue, Cleveland, Ohio.

24. Division 20 - VENTILATING, Section 20-C, MATERIALS, Paragraph 6, Roof Exhaust Fans, add the following:

For exhaust system serving Rooms #130, #131 and #218, Roof Exhaust Fan shall be size 91 C R as manufactured by Jenn-Air Products Co. with capacity of 400 CFM, 3/8" RP, 1140 RPM, 1/6 HP. Provide 20" square curb cap for curb mounting.

25. Division 20 - VENTILATING, Section 20-C, MATERIALS, Paragraph 8, Grilles, add following:

For exhaust system serving Rooms #130, #131 and #218; grilles shall be T-72 as manufactured by Tuttle and Bailey, Inc. Size as shown on the drawings.

26. Division 20 - VENTILATING, Section 20-D, INSTALLATIONS, Paragraph 1, Range Hood: Delete the second sentence of this paragraph and substitute therefor the following:

Weld to 4 angle hanger supports. Anchor angle hanger supports to angles at ceiling with 3/8" diameter machine bolts.

27. Division 20 - VENTILATING, Section 20-D, INSTALLATIONS, add following:

9. Stage Roof Gravity Vent

Install as detailed on the drawings.
Follow manufacturers instructions for installation.

28. Division 21 - ELECTRICAL, Section 21-C, MATERIALS, Paragraph 8, Lighting Fixtures, Type O (on page 21-7): "Description" for "Type O" fixture lists Perfeclite Company Catalog #3716. Change this to read: Perfeclite Company Catalog #3714.

29. Division 23 - ALTERNATES, Section 23-A, Alternate #1: Add the following sentence to the end of this paragraph:

All sound system outlets, complete with conduit and wire, shall remain as shown on drawings. Leave 12" of wire coiled in each outlet box and install blank covers.

30. Division 18 - PLUMBING, Sections 19-C and 19-D, MATERIALS AND INSTALLATIONS, Paragraph 16, Fixtures, sub-paragraph f, add after the words "Boiler Room" the following phrase: "(Except Girls' Toilet No. 217.)"

31. Division 18 - PLUMBING, Sections 19-C and 19-D, MATERIALS AND INSTALLATIONS, Paragraph 16, Fixtures, after sub-paragraph f add new sub-paragraph f-1 as follows:

f-1. Flush valve water closet 15" high - Item #18: F-2525 Neolo, elongated bowl, vitreous china, full siphon jet with 1½" top supply; fitted with #110-FYV flush valve (Sloan Royal), #9900 Church White Mol-Tex Seat, check hinge, bowl floor screws, caps and washers - in Girls' Toilet No. 217.

32. Division 21 - ELECTRICAL, Section 21-C, MATERIALS, Paragraph 8, Lighting Fixtures, add the following:

| Type | Description |
|---|---|
| UA | Incandescent exit light, surface steel box, glass panel with 5" red letters on white background in permanent ceramic colors similar and equal to Perfeclite Cat. #P-7119-5. |
| UB | Incandescent exit light, double face pendant type in steel box, glass panels shall have 5" red letters and red indicating arrows pointing both directions on each side, with white background in permanent ceramic colors. Complete with pendant stem and canopy. Similar and equal to Perfeclite Cat. #PT-7119 with arrows added. |

33. Division 21 - ELECTRICAL, Section 21-D, INSTALLATIONS, Paragraph 2, Power and Lighting System, sub-paragraph f, add the following:

Type UA, side wall mounted on box. See drawings for location.

Type UB, pendant mounted on stem, overall length is 24", mounting height shall be determined by stem length.

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## ADDENDUM NO. 2

ATHENS HIGH AND INDUSTRIAL SCHOOL (C)
ATHENS, GEORGIA

### CHANGES TO SPECIFICATIONS

1. Delete Page A-1, "Invitation to Bid" and substitute new "Invitation to Bid" dated December 16, 1954, attached hereto and made a part of this Addendum.

2. Division 11, CARPENTRY, Section 11-C, MATERIALS:

   Paragraph 3, Chalkboards: Delete the second sentence and substitute therefor the following:

   > Shall be 106 Grapholite Chalkboard by Claridge Products, Inc., or an approved equal.

   Paragraph 4, Tackboards: Delete the second sentence and substitute therefor the following:

   > Shall be Nucork #550 by Claridge Products Inc., or an approved equal.

3. Division 14, FINISH HARDWARE, Section 14-C, MATERIALS, Paragraph 3, Builders Hardware List, Item t, omit the following:

   1 Closer - #104 - Active Door
   1 Bracket - 26 3/4 - 4 - Active Door

4. Division 15, EQUIPMENT, Section 15-C, MATERIALS, Paragraph 2, Metal Lockers: Delete the last sentence reading "Provide standard metal dust cap for all lockers", and substitute therefor the following:

   > Provide standard metal sloping tops for all lockers.

5. Division 15, EQUIPMENT, Section 15-C, MATERIALS, Paragraph 4, Home Economics Equipment (Rooms #143 and #149), Sub-paragraph e, Finish: In the second sentence, delete the phrase "in standard white color" and substitute therefor the following phrase:

   > In color to be selected by Architect.

6. Division 16, COMPOSITION FLOORING, Section 16-D, INSTALLATION, Paragraph 1, Composition Flooring, delete the fourth sentence from the bottom which reads, "Finish all exposed edges......", and substitute therefor the following:

   > Finish all exposed edges with Chromedge 141-XB edging strip.

7. Division 17, PAINTING, Section 17-C, MATERIALS, Paragraph 1, Exterior Paint, add new sub-paragraph d. as follows:

   d. Spandrel Panel Paint: Primer, Alkyd resistant wall primer
   # UC 10341
   Finish coat, Cement Hide 7-1

   Division 17, PAINTING, Section 17-D, INSTALLATIONS, Paragraph 1, Exterior Paint: Omit the words "Spandrel panels" from the first sentence, and add the following new sentence:

   Paint all exposed spandrel panels one coat of alkyd resistant wall primer #UC 10341 and one coat of Cement Hide 7-1.

8. Division 18, PLUMBING, Section 18 C-D, MATERIALS AND INSTALLATIONS, add new Paragraph 18 as follows:

   18. Hot Water Piping Insulation

   All exposed hot water piping shall be insulated with 1/2" thick Fiberglas low pressure pipe insulation with factory applied canvas jacket, or approved equal. Exposed fittings shall be insulated with hydraulic setting mineral wool cement of same thickness as pipe covering. Concealed hot water piping shall be insulated with 1½" thick Foamglas sectional pipe insulation, or approved equal.

9. Division 21, ELECTRICAL, Section 21-C, MATERIALS, Paragraph 12, Centralized Sound Apparatus, Sub-paragraph b, Item 8: Change model number in last line from SS-271C to:

   Model SS 271 - 1C.

10. Division 8, ROOF DECK, Section 8-C, MATERIALS, Paragraph 1, Roof Deck and Floor Forming Deck: After the word "pressure" add the following:

    or material as manufactured by the Insulrock Corporation, Linden, N. J., or Tectum Division of the Alliance Mfg. Co., Newark, Ohio. This material shall be installed by the manufacturer or a licensed applicator, approved by the manufacturer.

    Paragraph 2, Cement Topping, at the beginning of the first sentence, before the word "roof", insert the following word: "Porex".

# ADDENDUM NO. 3

ATHENS HIGH AND INDUSTRIAL SCHOOL (C)
ATHENS, GEORGIA

## CHANGES TO SPECIFICATIONS

1. Division 11, CARPENTRY, Section 11-C, MATERIALS, Paragraph 3, Chalkboard:

   As amended by Paragraph 2 of Addendum No. 2, issued 21 January 1955, the second sentence of this paragraph was deleted and the following new sentence was substituted therefor:

   > Shall be 106 Grapholite Chalkboard by Claridge Products, Inc., or an approved equal.

   This second sentence of Paragraph 3, Chalkboard, Section 11-C, MATERIALS, Division 11, CARPENTRY, is now again amended by means of this Addendum No. 3, as follows: Delete the sentence as written above and substitute therefor the following:

   > Shall be Hyloplate Litesite, as manufactured by Weber Costello Company, Chicago Heights, Ill., or an approved equal.

2. Division 18, PLUMBING, Section 18 C & 18 D, MATERIALS AND INSTALLATIONS, add new Paragraph 19 as follows:

   19. Water Meter: Contractor to purchase and install water meter as shown on the drawings.

## CHANGES TO DRAWINGS

1. On Drawing No. A-3, in Room #157, add 8" x 12" Access Panel on pipe space wall, directly behind exterior drinking fountain, rear floor, for access to stop valve in pipe space for drinking fountain.

2. On Drawing No. S-3, ST4I -- 11.5 may be substituted for all T4 x 4 x 13.5 subpurlins. In lieu of second floor subpurlins ST4B -- 6.5 spanning 9'-7" over Room #142 and overhang immediately east thereof, two angles 4" x 3" x 5/16" may be substituted, provided they are stitch-welded together 2'-0" O.C. and the short legs are outstanding.

3. On Drawing No. H-3, Details 6/H-3 and 16/H-3: Omit chain operated damper.

4. On Drawing No. D-6, Detail 1/D-6, Layout of Science Rooms, remove "asterisk mark" from all equipment except the 9 combination physics-chemistry tables and substitute therefor "Not In Contract". All utility stub-outs to remain in contract.

Job 208
4 February 1955

Addendum # 3
1 Page Only

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Aeck Associates
Architects